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ABSTRACT

This report examines the participation of older undergraduates, above age 24, in postsecondary education using data from the 1989-90 National Postsecondary Student Aid Study (NPSAS:90) and the 1990-92 Beginning Postsecondary Student Longitudinal Study (BPS:90/92). It profiles older undergraduates and compares them with younger undergraduates with regard to demographic and socioeconomic characteristics, enrollment patterns, how they combine working with studying, and the types, sources, and amounts of financial aid they receive. It describes the participation of selected subgroups of older undergraduates including those employed full time, those enrolled full time, those enrolled less than half time, those assisted by their employers, those without high school diplomas, and single parents. Examination of persistence and attainment among older students who enrolled in postsecondary education for the first time in 1989-90 covers combining working and studying, participation in campus activities and programs, and controlling factors related to persistence. Some of the report's highlights include: (1) in 1989-90, 42 percent of all undergraduates were 24 years or older; (2) a majority of older undergraduates were married and had dependents other than a spouse; (3) 59 percent of older undergraduates attended a public less-than-4-year institution (compared with 33 percent of younger undergraduates). Appendixes contain a glossary, technical notes, and information on methodology. (JB)

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Statistical Analysis Report April 1995

Profile of Older Undergraduates: 1989–90

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Statistical Analysis Report April 1995

Profile of Older Undergraduates: 1989–90

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Highlights

This report uses data from the 1989–90 National Postsecondary Student Aid Study (NPSAS:90) and the 1990–92 Beginning Postsecondary Student Longitudinal Study (BPS:90/92) to describe the participation of older undergraduates—that is, undergraduates 24 years or older—in postsecondary education. It profiles older undergraduates and compares them with younger undergraduates along a number of dimensions; describes the participation of selected subgroups of older undergraduates; and examines persistence and attainment among older students who enrolled in postsecondary education for the first time in 1989–90. Some of the highlights are as follows:

- In 1989–90, 42 percent of all undergraduates were 24 years or older (39 percent of males and 45 percent of females).

- In contrast to their younger counterparts, the majority of older undergraduates were married (56 percent compared with 7 percent) and had dependents other than a spouse (53 percent compared with 4 percent). One-quarter of all female undergraduates in their 30s were single parents.

- Fifty-nine percent of older undergraduates attended a public less-than-4-year institution, compared with 33 percent of younger undergraduates.

- About one-quarter of older undergraduates were enrolled in a program that did not lead to a formal award, compared with 14 percent of younger undergraduates.

- Older undergraduates were predominantly part-time students. Only 31 percent attended full time (in contrast to 73 percent of younger undergraduates).

- Forty-six percent of all older undergraduates worked full time while enrolled. They were more likely than younger undergraduates to work full time regardless of whether they were enrolled full time or part time.

- Older students were more likely to work full time or not work at all while enrolled, while younger students were more likely to work part time.

- Older undergraduates were somewhat less likely than younger ones to receive financial aid (39 percent compared with 44 percent), but were much more likely to receive employer aid (9 percent compared with 1 percent).

- Among the 46 percent of older undergraduates who worked full time, 85 percent enrolled part time, and about two-thirds selected public less-than-4-year institutions. Sixteen percent of those who worked full time received financial aid from their employers. About one-quarter of the full-time workers who received $1,000 or more in employer aid had incomes of $50,000 or more.

- Some 9 percent of older undergraduates entered postsecondary education with a GED/certificate, and 3 percent with no high school diploma at all. These students were especially likely to select a private, for-profit institution (16 percent and 36 percent, respectively, compared with 7 percent of older undergraduates with high school diplomas).

- About three-quarters of the older undergraduates who enrolled in postsecondary education for the first time in 1989–90 perceived themselves primarily as workers rather than students.

- Among 1989–90 first-time beginners, older students were more likely than younger students to earn a certificate within 9 months (36 percent compared with 25 percent). However, older first-time beginners seeking an associate's or bachelor's degree were much more likely than younger degree seekers to leave without completing or reenrolling by spring of 1992 (66 percent versus 40 percent and 46 percent versus 23 percent).

Foreword

This report describes the participation of older undergraduates—that is, undergraduates 24 years and older—in postsecondary education. First, it profiles older students and compares them to younger students, describing their demographic and socioeconomic characteristics; their enrollment patterns; how they combine working and studying; and the types, sources, and amounts of financial aid they received. Next, it examines in detail certain subgroups of older students, including students who worked full time, enrolled full time, enrolled less than half time, received employer aid, enrolled without a high school diploma, and were single parents. Finally, the report examines persistence and attainment among older students who enrolled in postsecondary education for the first time in 1989–90.

The report uses data primarily from the 1989–90 National Postsecondary Student Aid Study (NPSAS:90). This survey was designed to answer fundamental questions about financial aid and detail undergraduates' education expenses, sources, and types of financial aid. The report also uses data from the 1990–92 Beginning Postsecondary Student Longitudinal Study (BPS:90/92), which followed a sample of students identified in NPSAS:90 as first-time beginning postsecondary students in the 1989–90 academic year.

The estimates in this report were produced using the National Center for Education Statistics (NCES) Data Analysis System (DAS), a software application that allows users to specify and generate tables from NPSAS and BPS data files. Each estimate produced in a table is accompanied by the standard error and weighted sample size on which the estimate was based. The DAS is available to anyone interested in further exploring the NPSAS or BPS (see appendix B for a more detailed discussion and directions for obtaining a copy).

We hope that readers of this report will find it informative and useful. We welcome recommendations for improving the format, content, or analysis to make subsequent reports even more informative and accessible.

Paul D. Planchon
Associate Commissioner

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Table of Contents

	Page
Highlights	iii
Foreword	v
Acknowledgments	vi
List of Tables	viii
List of Figures	x
Introduction	1
Background	1
Purpose of This Report	3
Data and Methods	4
Profile of Older Students and Comparison With Younger Students	6
Demographic and Socioeconomic Characteristics	7
Enrollment Patterns	11
Combining Working With Studying	16
Financial Aid	17
Subgroups of Older Students	25
Employed Full Time	25
Enrolled Full Time	25
Enrolled Less Than Half Time	26
Employer Aided	26
Without High School Diplomas	27
Single Parents	28
Older First-Time Beginning Postsecondary Students	38
Persistence of Older Beginning Postsecondary Students	38
Combining Working and Studying	41
Participation in Campus Activities and Programs	42
Controlling for Factors Related to Persistence	43
Conclusion	47
Appendix A: Glossary	49
Appendix B: Technical Notes and Methodology	59

List of Tables

Table		Page
1	Total fall enrollment in institutions of higher education, by gender: 1970–1991 (in thousands)	2
2	Percentage distribution of undergraduates according to age, by gender, race–ethnicity, and type of institution: 1989–90	6
3	Percentage distribution of undergraduates according to gender and race–ethnicity, by age: 1989–90	7
4	Percentage distribution of undergraduates according to marital status and number of dependents, by age: 1989–90	8
5	Percentage distribution of undergraduates who were single parents, by gender and age: 1989–90	8
6	Percentage distribution of undergraduates according to high school degree or equivalent and parents' highest education level, by age: 1989–90	9
7	Percentage distribution of financially independent undergraduates according to family income, by age: 1989–90	11
8	Percentage distribution of undergraduates according to institution level and control, by age: 1989–90	11
9	Percentage distribution of undergraduates according to degree program in which enrolled, by age: 1989–90	12
10	Percentage of undergraduates who identified various considerations as "very important" in their choice of institution, by age: 1989–90	13
11	Percentage distribution of undergraduates according to attendance status, by age: 1989–90	14
12	Percentage distribution of undergraduates according to major field of study, by institution type and age: 1989–90	15
13	Percentage distribution of undergraduates according to average hours worked per week when enrolled, by age: 1989–89	16
14	Percentage of undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90	18
15	Percentage of full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90	21
16	Percentage of less-than-full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90	22

17 Percentage distribution of undergraduates according to most important reason for not applying for financial aid: 1989–90 24

18 Percentage distribution of older undergraduates according to type of institution, by selected characteristics: 1989–90 29

19 Percentage distribution of older undergraduates according to degree program, by selected characteristics: 1989–90 30

20 Percentage distribution of older undergraduates according to attendance status, by selected characteristics: 1989–90 31

21 Percentage of older undergraduates who identified various considerations as "very important" in their choice of institution, by selected characteristics: 1989–90 32

22 Percentage distribution of older undergraduates according to field of study, by selected characteristics: 1989–90 33

23 Percentage distribution of older undergraduates according to hours worked per week while enrolled, by selected characteristics: 1989–90 35

24 Percentage of older undergraduates with any aid, grants, loans, and employer aid, by selected characteristics: 1989–90 36

25 Percentage distribution of 1989–90 first-time beginners seeking a certificate according to status in 1992, by age 38

26 Percentage distribution of 1989–90 first-time beginners seeking an associate's degree according to status in 1992, by age 39

27 Percentage distribution of 1989–90 first-time beginners seeking a bachelor's degree according to status in 1992, by age 40

28 Percentage distribution of 1989–90 first-time beginners by perception of status as student and worker 41

29 Percentage of first-time freshmen who "sometimes" or "often" participated in various campus activities and programs, by age: 1989–90 42

30 Percentage of first-time freshmen who "sometimes" or "often" had various types of contact with faculty, by age: 1989–90 42

31 Percentage of undergraduates seeking an associate's degree in 1989–90 who left without reenrolling by spring 1992 and the adjusted percentage taking into account the covariation of the variables listed in the table 44

32 Percentage of undergraduates seeking a bachelor's degree in 1989–90 who left without reenrolling by spring 1992 and the adjusted percentage taking into account the covariation of the variables listed in the table 46

B1 Standard errors for selected estimates of percentages from NPSAS:90 61

B2 Standard errors for selected estimates of percentages from BPS:90/92 62

List of Figures

Figure		Page
1	Students 25 years or older as a percentage of all students in institutions of higher education, by gender: 1970–91	3
2	Percentage distribution of undergraduates according to parents' highest education level, by age: 1989–90	10
3	Percentage distribution of undergraduates according to type of institution, by age: 1989–90	12
4	Percentage distribution of undergraduates according to degree program, by age: 1989–90	13
5	Percentage of undergraduates working full time and part time, by attendance status and age: 1989–90	17
6	Percentage of undergraduates with grants, loans, and employer aid, by age: 1989–90	20
7	Percentage of 1989–90 first-time beginning postsecondary students who had left without completing by 1992 and had not reenrolled, by degree program and age: 1989–90	40

Introduction

Background

Older students were once considered "nontraditional," but this is no longer an accurate characterization now that students 25 years or older make up almost one-half of the enrollment in American institutions of higher education. Over the past two decades, enrollment of older students has grown in both absolute numbers and as a proportion of total enrollment. In fall 1970, 2.4 million of the 8.6 million students enrolled in higher education (or 28 percent) were 25 years or older. By fall 1991, total enrollment had grown to 14.4 million, and 6.5 million students (or 45 percent) were 25 years or older (table 1). This increase has been due primarily to growth in the enrollment of older women. In 1970, women 25 years or older made up 10 percent of the total student population, and in 1991, 26 percent (figure 1).[1]

According to a survey of households conducted by the Bureau of the Census, approximately 9 percent of American high school graduates aged 25 or older were enrolled in some sort of postsecondary education during the 1990–91 school year. Although postsecondary education was defined broadly and could include short courses of only a few weeks duration as well as degree and certificate programs, the survey indicates the extent to which formal learning now extends into adulthood.[2]

Who are these older students? Some may have had postsecondary education aspirations for a long time, but delayed enrolling immediately after high school for personal or financial reasons. Others may have completed some postsecondary education when they were younger (perhaps even earning a degree or certificate) but reenrolled later to help advance their careers, prepare for new ones, or fulfill personal goals. Still others may have dropped out of high school in their youth and then decided later that they wanted to continue their education.

Postsecondary institutions must know more about the characteristics and needs of older students in order to plan, market, and deliver programs and services to them effectively. It is often argued that older students have unique needs and face significant barriers to participation in postsecondary education. For example, students who have been out of the classroom for many years sometimes need special support services upon re-entry in order to succeed academically. Campus administrative procedures and schedules often do not take into account the needs of working students. Older students may need assistance in obtaining affordable child care. In addition, some researchers and policymakers worry that the financial aid system does not serve older students well. The process for determining financial need was designed in the 1950s primarily for the financially dependent 17- or 18-year-old who was entering college as a full-time freshman. As a result, student aid programs sometimes fail to respond to the financial circumstances of older students.[3]

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[1] In the rest of this report, "older students" are defined as those 24 years or older, because this is the age at which they are considered financially independent of their parents for financial aid purposes.

[2] Rebecca Sutterlin and Robert A. Kominski, *Dollars for Scholars: Postsecondary Costs and Financing, 1990–91*, (Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1994), 15. Data from the Survey of Income and Program Participation (SIPP) were used for this report.

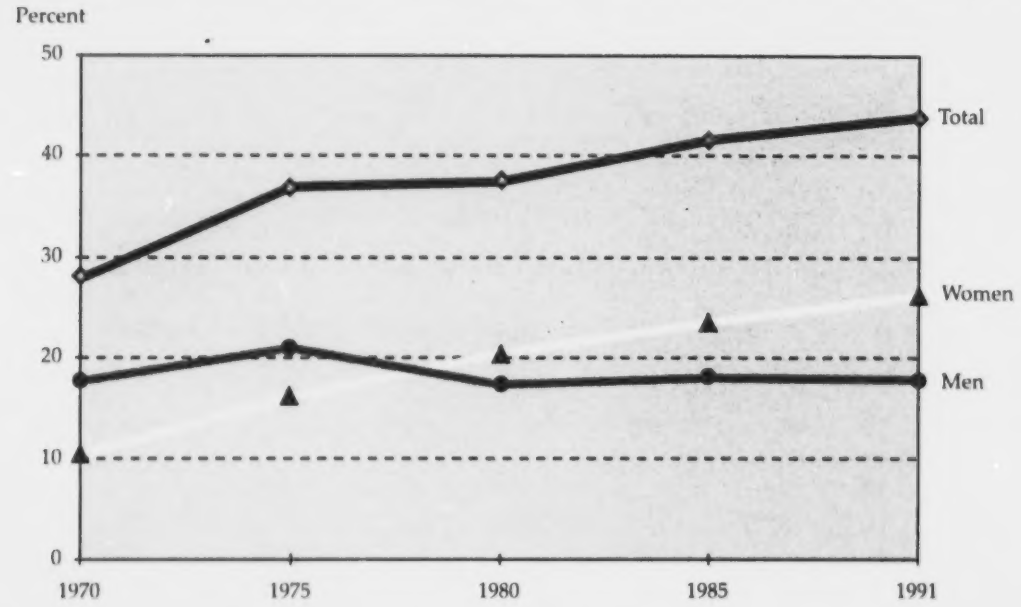
[3] National Commission on Responsibilities for Financing Postsecondary Education, *Making College Affordable Again* (Washington, D.C.: National Commission on Responsibilities for Financing Postsecondary Education, 1993), 21.

Table 1—Total fall enrollment in institutions of higher education, by gender: 1970–1991 (in thousands)

	1970	1975	1980	1985	1987	1990	1991	Percent change 1970–1991
All students								
Total	8,581	11,185	12,097	12,247	12,767	13,820	14,359	67.3
Age								
Less than 25 years old	6,197	7,061	7,561	7,148	7,578	7,753	7,889	27.3
25 years or older	2,384	4,124	4,536	5,099	5,189	6,067	6,470	171.4
25–29	1,074	1,774	1,871	1,953	1,930	2,063	2,135	98.8
30–34	487	967	1,243	1,261	1,266	1,360	1,468	201.4
35 years or older	823	1,383	1,422	1,885	1,993	2,644	2,867	248.4
25 years or older as % of total	27.8	36.9	37.5	41.6	40.6	43.9	45.1	
Men								
Total	5,044	6,149	5,874	5,818	5,932	6,284	6,502	28.9
Age								
Less than 25 years old	3,538	3,816	3,798	3,614	3,737	3,843	3,784	7.0
25 years or older	1,506	2,333	2,076	2,204	2,195	2,441	2,718	80.5
25–29	783	1,122	993	991	964	976	1,082	38.2
30–34	308	557	576	574	541	564	664	115.6
35 years or older	415	654	507	639	690	901	972	134.2
25 years or older								
% of total men	29.9	37.9	35.3	37.9	37.0	38.8	41.8	
% of all students	17.6	20.9	17.2	18.0	17.2	17.7	18.9	
Women								
Total	3,537	5,036	6,223	6,429	6,835	7,535	7,857	122.1
Age								
Less than 25 years old	2,658	3,245	3,764	3,534	3,841	3,909	4,105	54.4
25 years or older	879	1,791	2,459	2,895	2,994	3,626	3,752	326.8
25–29	291	652	878	962	966	1,087	1,053	261.9
30–34	179	410	667	687	725	796	804	349.2
35 years or older	409	729	914	1,246	1,303	1,743	1,895	363.3
25 years or older								
% of total women	24.9	35.6	39.5	45.0	43.8	48.1	47.8	
% of all students	10.2	16.0	20.3	23.6	23.5	26.2	26.1	

SOURCE: U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1993, 176.

Figure 1—Students 25 years or older as a percentage of all students in institutions of higher education, by gender: 1970–1991



SOURCE: Computed from U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1993, 176.

Purpose of This Report

This report describes the participation of older undergraduates in postsecondary education.[4] The first section profiles older undergraduates and shows how they differ from their younger counterparts in terms of their demographic and socioeconomic characteristics, their enrollment patterns, how they combine studying and working, and the types of financial aid they receive.

The second section focuses on selected subpopulations of older undergraduates who tend to face particular barriers to participation in postsecondary education, have specific needs for support services, and have different needs for financial aid than do younger, financially dependent students. The following groups (which are not mutually exclusive) are examined: students employed full time, students enrolled full time, students enrolled less than half time, employer-aided students, students with a GED or no high school diploma, and single parents.

The final section examines older students who enrolled in postsecondary education for the first time in 1989–90 (called "beginning postsecondary students" in this report), addressing not only the topics identified above but also their persistence and attainment through the spring of 1992. This last section also presents a multivariate analysis to help clarify whether or not

[4]Undergraduates made up about 88 percent of the students enrolled in postsecondary education in 1989–90. The remaining 12 percent were graduate students, most of whom (88 percent) were 24 years or older (U.S. Department of Education, National Center for Education Statistics, *Student Financing of Graduate and First-Professional Education* (Washington, D.C.: U.S. Department of Education, 1993), 10.

different persistence rates for younger and older students are related to age independently of other student characteristics.

Data and Methods

This report is based primarily on data from the 1990 National Postsecondary Student Aid Study (NPSAS:90), a nationally representative cross-sectional survey of undergraduate and graduate students enrolled in postsecondary institutions in 1989–90. NPSAS:90 provides detailed information about students' demographic and socioeconomic characteristics, the nature of their participation in postsecondary education, and how they financed that education. The report also uses data from the 1990 Beginning Postsecondary Student (BPS) Longitudinal Study, including the first follow-up of these students in the spring of 1992. BPS follows a sample of first-time beginning postsecondary students drawn from the NPSAS:90 sample, focusing on their education and employment experiences over time.

Definition of Older Undergraduates

For the purpose of this analysis, "older undergraduates" are defined as postsecondary students 24 years of age or older seeking a bachelor's degree or less. The federal government considers students to be financially independent at age 24, and no longer takes parental resources into account in evaluating need for student financial aid. Although some students in this group may still be receiving some parental support, for the most part these students rely on their own resources and, if married, perhaps their spouse's financial resources as well. In addition to being financially independent, these older undergraduates may have worked, served in the military, be raising a family, or had other experiences that differ from those of students who began postsecondary education within a year or two of high school graduation. Note that throughout the report, the terms "older undergraduates" and "older students" are used interchangeably.

Parts of the analysis were limited to first-time beginning postsecondary students. In contrast to the general population of "older undergraduates," who may have started their postsecondary education when they were younger than 24 years of age, "older first-time beginners" in the BPS sample did not start until they were at least 24 years old. Therefore, on average, the BPS sample will be older than the general population of older students at any particular point in their academic career

Types of Postsecondary Education Included

The NPSAS:90 sample included public; private, not-for-profit; and private, for-profit postsecondary institutions that offered programs at least 3 months long. Institutions offering only correspondence courses; only programs shorter than 3 months; or only avocational, recreational, or remedial courses were not included. However, there were no sampling restrictions placed on students attending the institutions selected for NPSAS. In other words, a student taking only one course or enrolled in a 1-month program, for example, could have been included in the NPSAS study as long as the student was enrolled in an institution that offered programs lasting at least 3 months.

Statistical Methods

The estimates in this report are presented in a tabular format in which the percentages reported are row percentages. Any differences discussed in the text were statistically significant and were evaluated using a two-tailed *t*-test adjusted for multiple-paired comparisons. (See appendix B for details on the statistical methodology.) Not all statistically significant differences were reported, however. Regression techniques were used to detect the extent to which age could predict the probability of beginning postsecondary students persisting in postsecondary education when controlling for other factors.

Profile of Older Students and Comparison With Younger Students

In 1989–90, 42 percent of all undergraduates in postsecondary institutions were 24 years or older, spread across the age spectrum (table 2).[5] Older undergraduates actually made up at least one-half of the student population in all types of less-than-2-year institutions and in public 2-year institutions. In public and private, not-for-profit less-than-2-year institutions, 6 to 7 percent of the students were 50 years or older.

Table 2—Percentage distribution of undergraduates according to age, by gender, race–ethnicity, and type of institution: 1989–90

	Under 24	24–29	30–34	35–39	40–44	45–49	50 or older
Total	57.7	16.7	8.9	6.7	4.7	2.7	2.6
Gender							
Male	61.5	17.8	7.9	5.1	3.6	1.8	2.2
Female	55.0	15.6	9.5	7.9	5.6	3.4	3.0
Race–ethnicity							
American Indian	52.8	11.6	13.2	11.1	5.3	4.0	2.0
Asian/Pacific Islander	63.2	18.5	6.8	4.3	4.2	2.0	1.1
Black, non-Hispanic	51.9	20.3	11.1	7.3	4.8	2.7	1.9
Hispanic	59.6	19.4	9.1	6.2	2.5	1.5	1.6
White, non-Hispanic	57.9	15.9	8.6	6.8	4.9	2.9	3.0
Institution type							
Public							
Less-than-2-year	40.0	18.1	11.6	10.7	7.7	6.0	5.9
2- to 3-year	43.8	19.2	12.0	9.3	6.9	4.2	4.4
4-year nondoctoral	67.4	15.1	6.5	4.8	3.1	1.7	1.5
4-year doctoral	75.0	13.6	4.5	3.4	1.9	0.9	0.6
Private, not-for-profit							
Less-than-2-year	24.5	31.2	17.0	12.0	5.6	2.7	7.0
2- to 3-year	65.8	15.7	7.0	5.3	3.1	1.6	1.5
4-year nondoctoral	68.2	12.0	6.7	5.5	4.2	2.0	1.4
4-year doctoral	78.8	10.9	4.1	2.9	1.6	1.0	0.7
Private, for-profit							
Less-than-2-year	47.4	23.5	12.9	7.4	5.0	1.9	1.9
2-year or more	56.3	20.6	10.5	5.3	3.8	2.0	1.5

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Although older students may no longer accurately be called "nontraditional" because of their large numbers, they tend to look quite different from younger undergraduates in terms of

[5]This percentage of older students differs from the 45 percent cited in the previous section because the populations of both students and institutions are different. The 45 percent in the previous section includes graduate students as well as undergraduates, students 25 years or older rather than 24 years or older, and only institutions of higher education, a more limited group than all postsecondary institutions.

their demographic and socioeconomic characteristics, their enrollment patterns, how they combine studying and working, and their use of financial aid to pay for their education. These differences potentially affect older students' access to postsecondary education and their ability to succeed once enrolled.

To provide a brief overview: the older undergraduate population was predominantly white; low to moderate income (almost three-quarters had annual family incomes of less than $30,000); most likely to attend public less-than-4-year institutions (59 percent) and to attend part time (69 percent). Almost half were working 40 hours a week or more while they were enrolled. Like their younger counterparts, older students were more likely to be studying business and management than anything else. However, they were more likely than younger students to major in occupationally-related fields such as computer and information technology, health, and vocational/technical subjects. About one-quarter of all older students were not seeking any kind of degree, certificate, or other formal award. Thirty-nine percent of older undergraduates received some type of financial aid. About 10 percent of students in their 30s or older received financial support from their employers.

Demographic and Socioeconomic Characteristics

The gender and racial–ethnic composition of the undergraduate population changed with age. In all undergraduate age groups shown in table 3, more than half of undergraduates were female, but students in their 30s and 40s were especially likely to be female (62 percent and 66 percent, respectively). The undergraduate population was about three-quarters white, non-Hispanic regardless of age, but older students were slightly more likely than younger students to be black, non-Hispanic and slightly less likely to be Asian. Students over 40 years of age were especially likely to be white, non-Hispanic.

Table 3—Percentage distribution of undergraduates according to gender and race–ethnicity, by age: 1989–90

	Gender		Race–ethnicity				
	Male	Female	American Indian	Asian/Pacific Islander	Black, non-Hispanic	Hispanic	White, non-Hispanic
Total	44.6	55.4	0.8	4.7	10.2	8.4	75.9
Age							
Less than 24 years old	47.4	52.6	0.7	5.2	8.7	8.3	77.1
24 years or older	40.8	59.2	0.9	4.1	11.1	7.7	76.3
24–29	47.9	52.1	0.5	5.2	11.8	9.3	73.1
30–39	37.8	62.2	1.2	3.3	11.5	7.9	76.0
40 years or older	33.9	66.1	0.9	3.4	9.1	4.6	82.1

NOTE: Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

In the aggregate, older and younger undergraduates had different family situations (table 4). As age increased, students were more likely to be married and to have children (or other dependents), bringing increased demands on their time and, depending on whether their spouse worked or not, either additional financial resources or increased demands on their own resources. The older student population included a substantial number of single parents (21 percent of

females and 8 percent of males). One-quarter of all female undergraduates in their 30s were single parents (table 5).

Table 4—Percentage distribution of undergraduates according to marital status and number of dependents, by age: 1989–90

	Marital status		Dependents other than spouse		
	Not married	Married/ separated	None	One	2 or more
Total	72.7	27.3	75.8	9.6	14.7
Age					
Less than 24 years old	93.5	6.5	96.1	2.9	1.1
24 years or older	44.3	55.7	47.1	18.9	34.0
24–29	59.0	41.0	65.0	17.3	17.8
30–39	36.3	63.7	31.5	19.0	49.5
40 years or older	31.5	68.5	42.2	21.4	36.4

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 5—Percentage distribution of undergraduates who were single parents, by gender and age: 1989–90

	Females	Males
Total	10.9	3.3
Age		
Less than 24 years old	3.1	0.9
24 years or older	21.0	7.7
24–29	19.1	0.9
30–39	24.8	6.4
40 years or older	17.6	8.4

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

The vast majority of undergraduates of all ages had a high school diploma, but a GED or even the lack of any high school credential did not appear to preclude postsecondary education, especially for older students. Nine percent of older students had a GED (about three times the proportion of younger students), and 3 percent had no high school diploma or certificate at all (table 6).

Table 6—Percentage distribution of undergraduates according to high school degree or equivalent and parents' highest education level, by age: 1989–90

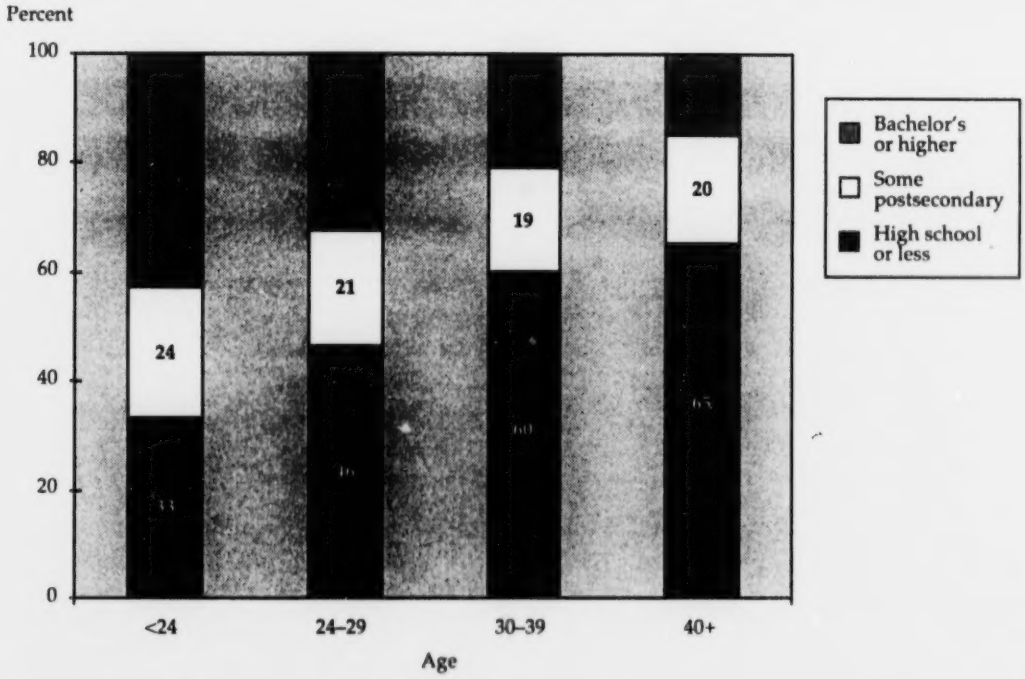
	High school degree			Parents' education		
	High school diploma	GED/ certificate	None	High school or less	Some postsecondary, less than a bachelor's degree	Bachelor's degree or higher
Total	92.1	5.4	2.5	41.5	22.6	36.0
Age						
Less than 24 years old	95.8	2.6	1.6	33.4	23.9	42.6
24 years or older	88.4	8.9	2.7	54.7	20.3	24.9
24–29	89.4	8.2	2.4	46.4	21.3	32.3
30–39	87.7	9.6	2.7	59.8	19.5	20.7
40 years or older	88.1	8.7	3.2	65.3	19.7	15.1

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Older students tended to have less educated parents than their younger counterparts. They were much less likely than younger students to have a parent with a bachelor's degree (25 percent compared with 43 percent). About two-thirds of all students in their 40s or older came from families where the parents had a high school education or less, compared with only one-third of students who were less than 24 years old (figure 2). Although many older students' parents belong to a generation that was less likely to complete high school or attend college, it is noteworthy that even those aged 24–29 were less likely to have parents with a bachelor's degree and more likely to have parents with only a high school education or less.

Figure 2—Percentage distribution of undergraduates by parents' highest education level, by age: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

It is difficult to compare the financial situations of older and younger students because most younger students have access to parental resources, whereas students 24 years or older are usually financially independent of their parents (and are considered so for financial aid purposes). Older undergraduates as a group tended to have low to moderate family incomes (meaning their own and their spouse's incomes), with about three-quarters having incomes under $30,000 (table 7). However, older undergraduates, especially those in their 30s or older, were better off financially than younger students who were financially independent (that is, they were more likely to have incomes of $30,000 or more). Among older undergraduates, those in the 24- to 29-year age group were the most likely to have incomes of less than $10,000.

Table 7—Percentage distribution of financially independent undergraduates according to family income, by age: 1989–90

	Less than $10,000	$10,000 to $29,999	$30,000 or higher
Total	34.0	41.9	24.0
Age			
Less than 24 years old	58.3	36.8	4.9
24 years or older	27.7	43.4	28.8
24–29	37.7	46.9	15.4
30–39	23.4	40.9	35.7
40 years or older	17.9	41.5	40.5

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Enrollment Patterns

Choice of Institution and Degree Program

Older students relied heavily on public postsecondary education, especially less-than-4-year institutions. Fifty-nine percent enrolled in public less-than-4-year institutions, and another 22 percent in public 4-year institutions (table 8 and figure 3). They were spread across all types of degree programs: 33 percent were enrolled in an associate's degree program, 24 percent in a bachelor's degree program, and 17 percent in a program leading to a certificate or other formal award (table 9 and figure 4). The remaining 26 percent enrolled for courses in a program without a formal award. Older students were less likely than younger students to choose a 4-year institution or to enroll in a bachelor's degree program.

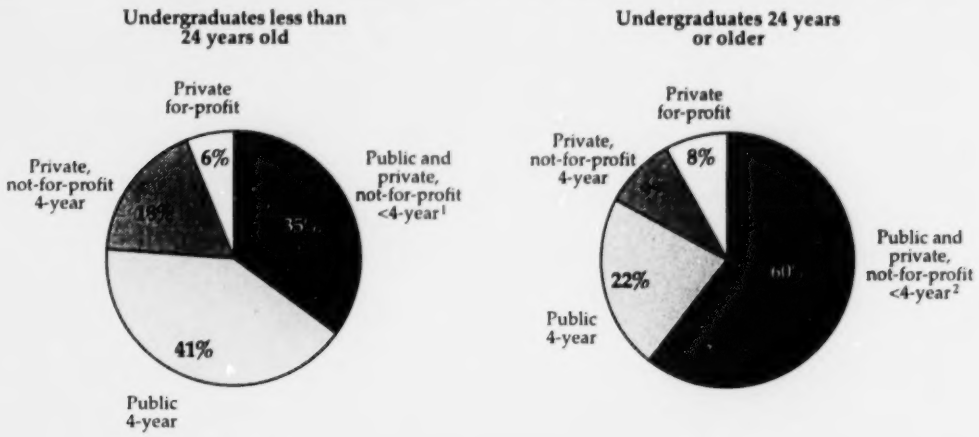
Table 8—Percentage distribution of undergraduates according to institution level and control, by age: 1989–90

	Public		Private, not-for-profit		Private, for-profit
	Less-than-4-year	4-year	Less-than-4-year	4-year	
Total	3.3	32.3	1.6	14.1	8.6
Age					
Less than 24 years old	33.4	41.0	1.5	17.8	6.3
24 years or older	58.7	22.0	1.6	9.4	8.3
24–29	50.6	28.1	1.8	9.9	9.5
30–39	60.6	19.9	1.6	9.4	8.5
40 years or older	69.1	15.3	1.3	8.5	5.8

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Figure 3—Percentage distribution of undergraduates by type of institution, by age: 1989–90



[1] Includes 1.5 percent in private, not-for-profit, less-than-4-year institutions.

[2] Includes 1.6 percent in private, not-for-profit, less-than-4-year institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

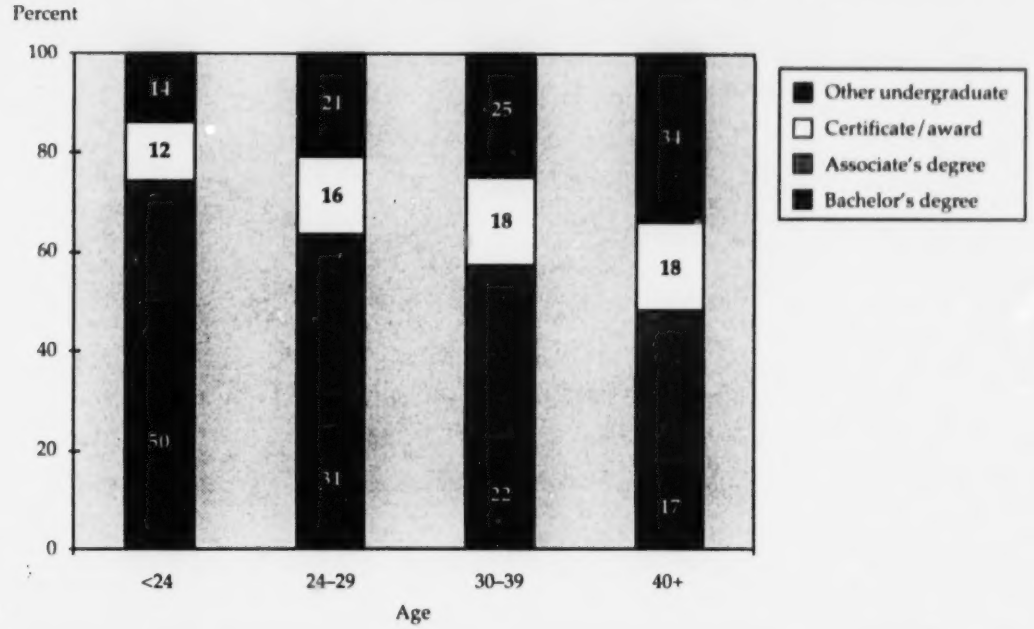
Table 9—Percentage distribution of undergraduates according to degree program in which enrolled, by age: 1989–90

	Associate's degree	Bachelor's degree	Certificate	Other undergraduate
Total	28.0	38.2	14.9	18.8
Age				
Less than 24 years old	25.0	49.7	11.5	13.7
24 years or older	33.1	24.3	16.9	25.7
24–29	32.5	31.1	15.5	20.9
30–39	35.0	21.8	17.8	25.4
40 years or older	31.1	16.6	18.0	34.2

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Figure 4—Percentage distribution of undergraduates by degree program, by age: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

One-half or more of older students reported that the following were very important considerations in selecting a postsecondary institution: the institution offered the course of study they wanted (79 percent); they could live at home (69 percent); they were able to go to school and work (63 percent); the institution was located close to home (54 percent); and the institution had a good reputation (50 percent) (table 10). Except for the institution's reputation, younger students were less likely to consider these factors as very important.

Table 10—Percentage of undergraduates who identified various considerations as "very important" in their choice of institution, by age: 1989–90

	Offered course of study wanted	Could work while attending	Could live at home	Institution had a good reputation	Institution was close to home	Good reputation for placing graduates	Tuition less than others	Could finish in shorter time	Obtained financial aid
Total	72.6	51.3	50.8	50.4	43.4	36.1	36.8	29.2	24.4
Age									
Less than 24 years old	68.2	42.7	37.3	50.8	36.1	40.3	36.9	23.6	25.1
24 years or older	78.6	63.0	68.5	49.9	53.6	30.3	36.5	36.9	23.5
24–29 years	76.0	61.9	57.0	48.7	47.8	32.5	38.8	34.2	26.0
30–39 years	80.0	64.2	73.8	49.5	56.1	29.5	36.4	37.7	23.7
40 years or older	80.8	62.8	79.1	52.2	59.1	27.9	33.0	40.1	19.2

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Being able to live at home became increasingly important with age, which one would expect given the greater likelihood of the student being married and having dependents. Among students less than 24 years old, only 37 percent said living at home was "very important." Among students 24–29 years old, it was very important to 57 percent; among students in their 30s, 74 percent; and among students in their 40s or older, 79 percent.

Although being able to obtain financial aid might be an important consideration for some older students in deciding whether or not to enroll in postsecondary education (the NPSAS:90 data do not address this), compared with other considerations, it was not that important to older students in choosing a specific institution (24 percent said it was very important). However, 41 percent of older students attended less than half time and would, therefore, have had less need for financial aid.

Enrollment Intensity

Older undergraduates were predominantly part-time students. Only about one-third (31 percent) attended full time (compared with 73 percent of younger students), and the percentage who attended full time decreased with age (table 11). At the other end of the attendance spectrum, the likelihood of enrolling less than half time increased with age, with 54 percent of those in their 40s or older enrolled less than half time.

Table 11—Percentage distribution of undergraduates according to attendance status, by age: 1989–90

	All institutions*			Public 2- to 3-year			Public and private, not-for-profit 4-year institutions		
	Full-time	At least half-time	Less than half-time	Full-time	At least half-time	Less than half-time	Full-time	At least half-time	Less than half-time
Total	56.1	21.0	22.8	30.7	29.1	40.1	74.1	15.3	10.5
Age									
Less than 24 years old	73.2	16.6	10.2	46.7	30.0	23.2	86.4	9.9	3.7
24 years or older	31.3	27.5	41.2	18.0	28.5	53.5	42.8	29.3	28.0
24–29	39.3	28.2	32.5	20.4	31.8	47.8	53.5	26.9	19.6
30–39	28.6	28.9	42.5	18.0	29.6	52.4	35.3	32.5	32.3
40 years or older	21.9	24.0	54.1	14.9	23.0	62.1	28.0	29.6	42.4

*Includes all types of institutions.

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Field of Study

Business was the most popular field of study regardless of age, with roughly one-quarter of the students in each age category selecting this major (table 12). Among students in 4-year institutions, those in their 30s or older were more likely than those in younger age groups to be

enrolled in health and education, fields in which students return continuously for additional training to maintain their licenses or certification.

Table 12—Percentage distribution of undergraduates according to major field of study, by institution type and age: 1989–90

	Lib. arts/ human./ arts	Soc./ behav. sci.	Life sci.	Physical sci.	Math	Comp. info. tech.	Engin- eering	Edu- cation	Bus./ mgt.	Health	Voc./ tech.	Other tech./ prof.
						Total*						
Total	15.2	6.4	2.8	1.1	1.0	4.5	7.2	7.0	23.8	8.7	6.4	15.9
Age												
Less than 24 years old	16.7	8.2	3.8	1.1	1.1	3.5	8.1	6.8	23.2	7.5	4.9	15.1
24 years or older	14.0	4.2	1.5	1.2	0.9	5.8	6.4	7.7	24.1	10.6	8.0	15.7
24–29	13.3	5.2	2.3	1.0	1.3	5.6	8.3	6.4	24.2	9.1	8.1	15.3
30–39	13.3	3.0	1.0	1.4	0.8	5.5	6.2	8.3	25.0	12.0	7.9	15.6
40 years or older	16.4	4.3	0.8	1.3	0.5	6.5	3.2	9.0	22.3	10.7	8.2	16.6
						Public less-than-4-year						
Total	18.8	2.8	1.4	1.4	1.0	4.5	6.0	5.5	23.9	8.9	10.1	15.8
Age												
Less than 24 years old	21.9	3.6	1.8	1.5	1.2	2.4	6.7	4.3	24.6	6.5	9.4	16.1
24 years or older	16.6	2.1	1.1	1.4	0.9	6.0	5.6	6.4	23.5	10.5	10.7	15.4
24–29	16.2	2.5	1.9	1.0	1.5	5.6	7.6	5.2	22.7	9.5	11.8	14.5
30–39	16.2	1.4	0.6	1.5	0.6	5.1	5.5	7.0	24.9	12.0	9.9	15.3
40 years or older	17.6	2.5	0.7	1.7	0.6	7.7	2.9	7.2	22.4	9.5	10.5	16.8
						Public and private, not-for-profit 4-year						
Total	15.1	11.1	4.7	1.0	1.2	3.4	8.2	9.7	23.0	10.2	1.7	10.6
Age												
Less than 24 years old	15.7	11.9	5.5	1.0	1.3	3.1	8.6	9.0	22.3	8.7	1.9	11.2
24 years or older	13.7	9.3	2.8	1.1	1.2	4.1	7.6	11.6	24.6	13.7	1.3	9.1
24–29	13.3	10.1	3.5	1.0	1.3	4.2	9.4	8.9	25.9	11.0	1.5	9.7
30–39	12.2	7.5	2.2	1.4	1.3	4.7	6.9	13.2	25.0	16.0	1.2	8.4
40 years or older	17.8	10.9	1.6	0.6	0.7	2.5	3.4	16.2	20.0	17.2	0.8	8.3

*Includes all types of institutions.

NOTE: Details may not add to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

The proportion of students enrolled in computer and information technology was relatively low overall, but these fields appear to attract older students whose prior schooling took place before widespread computer use and the growth of the information technologies. Compared with younger students, a relatively larger proportion of students 40 years or older were enrolled in computer and information technology (7 percent compared with 4 percent).

Combining Working With Studying

How students combined work and postsecondary enrollment varied with age. Overall, almost one-half (46 percent) of the older undergraduates were working full time (defined here as 40 or more hours per week[6]), but another one-quarter were not working at all (table 13). Students in their 40s or older were the most likely not to be working while enrolled.

Table 13—Percentage distribution of undergraduates according to average hours worked per week when enrolled, by age: 1989–90

	Did not work	1–19 hours	20–29 hours	30–39 hours	40 or more hours
			All students		
Total	22.8	13.5	16.5	14.4	32.9
Age					
Less than 24 years old	21.0	17.8	22.0	16.3	23.0
24 years or older	25.2	7.8	8.9	11.8	46.3
24–29	21.1	9.0	11.3	13.7	44.9
30–39	25.7	7.6	7.7	10.9	48.1
40 years or older	30.9	6.0	6.9	10.2	46.0
			Full-time students		
Total	25.0	19.7	21.7	14.6	19.0
Age					
Less than 24 years old	22.0	21.1	23.9	15.4	17.7
24 years or older	35.6	14.7	14.2	11.7	23.9
24–29	29.6	16.1	17.1	14.1	23.2
30–39	38.9	15.1	10.5	10.1	25.4
40 years or older	46.9	9.9	12.9	7.8	22.6
			Part-time students		
Total	19.6	6.7	11.1	14.1	48.6
Age					
Less than 24 years old	17.5	9.5	18.6	18.2	36.2
24 years or older	20.7	5.2	7.0	11.9	55.2
24–29	16.0	5.5	8.4	13.2	57.0
30–39	20.6	5.4	6.7	11.4	55.9
40 years or older	27.0	4.6	5.5	11.1	51.9

NOTE: Details may not add to totals because of rounding.

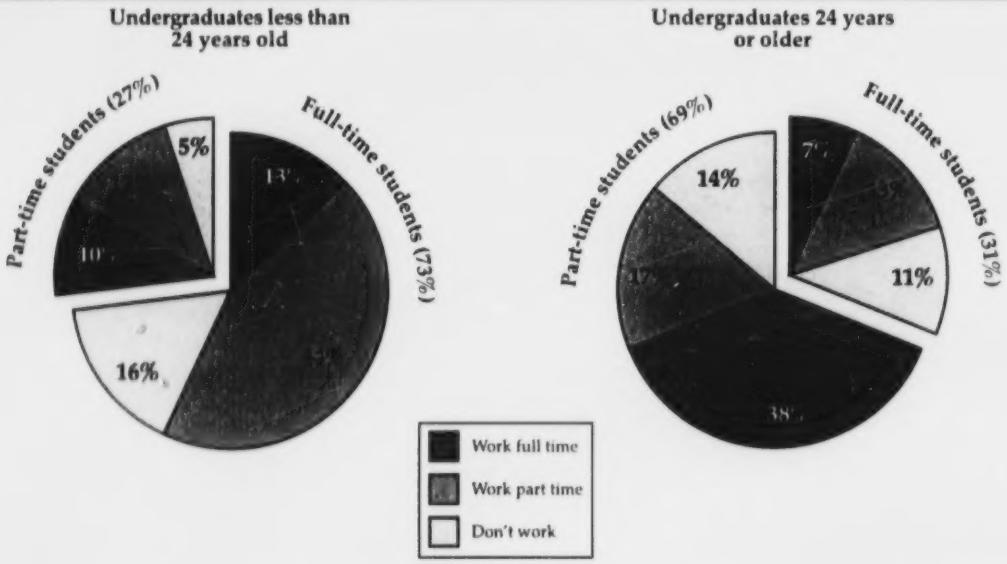
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

[6]Full-time work is often defined as 35 hours or more per week. However, 40 hours was used here to help distinguish between students who were primarily workers and students who were primarily students but worked a substantial number of hours while enrolled.

Comparing older and younger students, older students were more likely to work full time or not work at all while enrolled, while younger students were more likely to be working part time. The pattern was the same for both full- and part-time students.

Looking at work and attendance status together, 38 percent of older undergraduates enrolled part time and worked full time (figure 5). Among younger students, 44 percent enrolled full time and worked part time.

Figure 5—Percentage of undergraduates working full and part time, by attendance status and age: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Financial Aid

Overall, 39 percent of all older students received financial aid in 1989–90 (table 14). Thirty-four percent received grants (averaging about $1,700), and 15 percent took out loans through student aid programs (averaging about $3,200). Included in the percentage receiving grants were 9 percent who received assistance from their employers (averaging about $800). Students in their 40s or older were the least likely (30 percent) to receive aid (figure 6). The amounts and types of aid received did vary, as one would expect, according to the type of institution attended and the student's attendance status (tables 15 and 16).

Table 14—Percentage of undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
				Total[3]				
Total	42.8	$3,606	36.2	$2,257	18.8	$2,799	4.2	$791
Age								
Less than 24 years old	43.9	4,040	36.2	2,670	20.5	2,586	1.0	937
24 years or older	38.7	2,970	34.0	1,714	14.9	3,183	8.6	765
24–29	42.0	3,520	36.7	1,954	20.3	3,204	5.8	884
30–39	40.5	2,752	35.6	1,591	14.2	3,232	10.7	708
40 years or older	30.1	2,145	27.0	1,419	6.7	2,916	10.0	743
				Public less-than-4-year				
Total	27.9	$1,991	24.7	$1,313	5.2	$2,700	5.7	$456
Age								
Less than 24 years old	26.1	2,215	22.3	1,493	4.8	2,269	1.6	428
24 years or older	28.5	1,860	26.0	1,212	5.3	3,050	8.9	461
24–29	29.3	2,507	26.7	1,469	7.9	3,409	6.2	596
30–39	31.5	1,641	28.5	1,085	5.5	2,828	10.9	371
40 years or older	23.5	1,276	21.8	1,051	1.8	2,041	9.5	492
				Public 4-year				
Total	43.0	$3,351	34.6	$2,112	20.4	$2,433	2.3	$790
Age								
Less than 24 years old	43.5	3,348	33.9	2,208	20.3	2,227	0.5	1,166
24 years or older	41.3	3,414	36.0	1,916	20.6	2,949	6.7	722
24–29	44.6	3,694	38.3	2,034	25.9	2,867	3.9	676
30–39	41.5	3,300	36.4	1,868	18.4	3,170	9.7	788
40 years or older	30.8	2,486	27.9	1,541	9.0	2,768	9.3	641

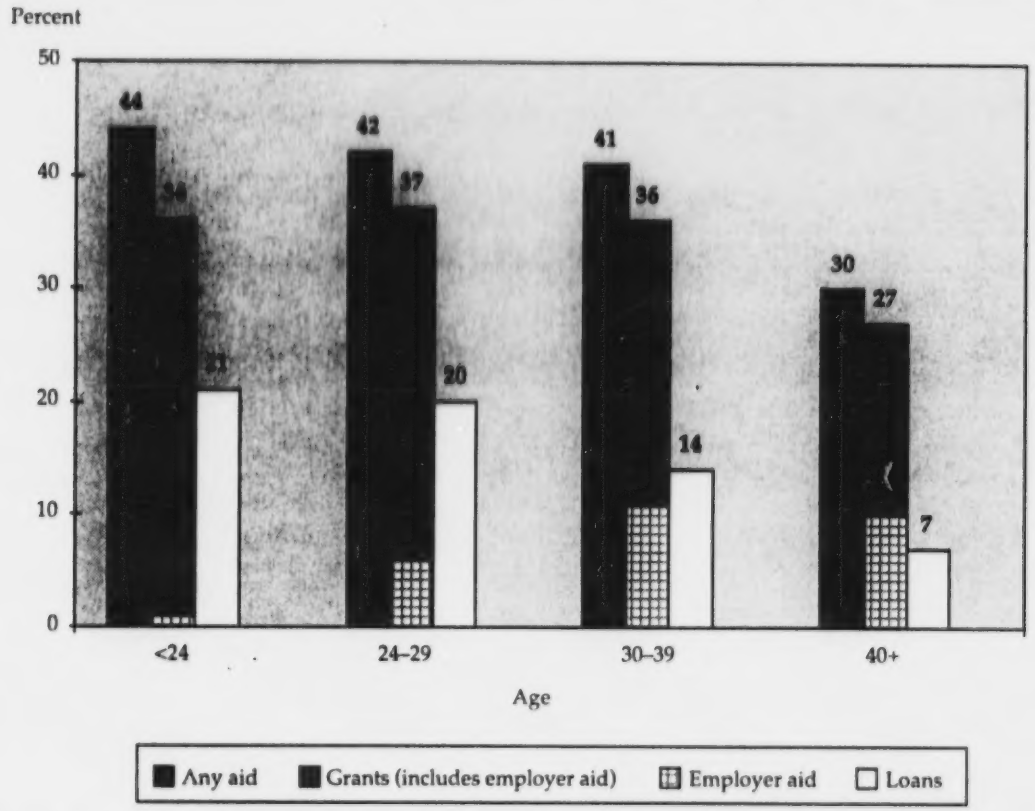
Table 14—Percentage of undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90—Continued

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
Private, not-for-profit 4-year								
Total	63.4	$5,844	57.6	$3,890	32.9	$3,087	5.5	$1,632
Age								
Less than 24 years old	66.0	6,494	59.5	4,379	37.2	2,980	1.1	2,113
24 years or older	55.5	4,172	51.2	2,634	22.8	3,564	16.6	1,587
24–29	58.7	4,737	54.4	2,973	27.6	3,589	13.2	1,521
30–39	56.0	3,978	51.1	2,433	22.3	3,672	18.6	1,601
40 years or older	48.2	3,224	45.2	2,229	14.5	3,186	19.7	1,651
Private, for profit								
Total	80.6	$4,066	63.3	$1,986	58.0	$3,046	1.3	$2,194
Age								
Less than 24 years old	75.1	3,982	57.1	1,917	56.4	2,834	0.7	—
24 years or older	80.9	4,120	63.9	1,956	57.5	3,300	2.4	2,381
24–29	83.5	4,215	66.1	1,943	63.0	3,297	1.5	—
30–39	80.7	4,118	64.2	1,984	56.0	3,335	2.8	—
40 years or older	74.5	3,835	57.5	1,926	45.6	3,216	4.0	—

[1]Includes grants, loans, work-study, and "other" aid.
[2]Included in grants.
[3]Includes all types of institutions.
—Sample size too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Figure 6—Percentage of undergraduates with grants, loans, and employer aid, by age: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 15—Percentage of full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
				Total[3]				
Total	55.8	$4,709	46.7	$3,059	29.9	$2,791	0.8	$2,122
Age								
Less than 24 years old	53.1	4,680	43.9	3,140	27.4	2,641	0.5	1,881
24 years or older	70.6	4,825	61.9	2,752	43.2	3,297	2.2	2,402
24–29	70.3	4,975	61.5	2,804	47.2	3,293	1.4	—
30–39	73.3	4,718	64.3	2,659	42.7	3,334	2.7	—
40 years or older	64.8	4,519	57.8	2,807	30.1	3,190	4.1	—
				Public less-than-4-year				
Total	45.9	$2,628	40.6	$1,834	13.4	$2,265	1.2	—
Age								
Less than 24 years old	38.0	2,135	33.3	1,561	8.4	1,767	0.8	—
24 years or older	68.3	3,387	61.2	2,247	27.2	2,693	2.4	—
24–29	74.2	3,487	65.5	2,289	34.3	2,735	1.9	—
30–39	65.8	3,141	58.9	2,047	25.6	2,632	2.1	—
40 years or older	61.7	3,757	57.5	2,629	16.3	—	4.4	—
				Public 4-year				
Total	49.7	$3,724	39.0	$2,382	25.6	$2,473	0.4	—
Age								
Less than 24 years old	47.7	3,513	36.6	2,329	23.2	2,279	0.3	—
24 years or older	64.0	4,819	55.5	2,625	42.4	3,209	1.3	—
24–29	62.0	4,833	53.6	2,609	43.7	3,166	0.5	—
30–39	71.6	4,916	61.8	2,669	45.1	3,268	2.8	—
40 years or older	56.9	4,392	50.4	2,597	27.0	—	2.5	
				Private, not-for-profit 4-year				
Total	71.0	$7,271	64.5	$4,743	44.6	$3,158	0.9	$2,879
Age								
Less than 24 years old	70.0	7,255	63.5	4,796	43.2	3,070	0.6	3,253
24 years or older	81.7	7,418	76.1	4,261	60.0	3,846	4.5	—
24–29	80.4	7,572	75.6	4,400	59.7	3,806	3.2	—
30–39	86.7	7,575	80.1	4,185	63.2	4,070	3.7	—
40 years or older	74.8	6,404	68.6	3,936	53.9	3,378	10.8	—

Table 15—Percentage of full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90—Continued

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
				Private, for profit				
Total	83.6	$4,993	63.2	$2,325	68.9	$3,311	1.2	—
Age								
Less than 24 years old	80.8	4,739	57.6	2,155	66.5	3,087	0.3	—
24 years or older	87.8	5,346	71.6	2,533	72.5	3,621	2.6	—
24–29	90.4	5,515	73.5	2,557	79.4	3,760	2.0	—
30–39	87.2	5,263	72.3	2,557	69.6	3,518	4.0	—
40 years or older	79.9	4,931	62.4	2,347	56.1	3,293	0.0	—

[1]Includes grants, loans, work-study, and "other" aid.
[2]Included in grants.
[3]Includes all types of institutions.
—Sample size too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 16—Percentage of less-than-full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
				Total[3]				
Total	32.1	$2,763	27.2	$1,618	11.5	$2,816	6.2	$712
Age								
Less than 24 years old	32.3	3,312	26.1	2,017	13.5	2,525	1.6	730
24 years or older	31.3	2,328	27.5	1,329	9.5	3,176	10.0	713
24–29	32.7	2,940	28.4	1,559	13.4	3,259	7.2	847
30–39	33.7	2,127	29.7	1,241	9.2	3,194	12.3	653
40 years or older	25.8	1,579	23.3	1,083	4.2	2,728	10.8	682
				Public less-than-4-year				
Total	23.2	$1,819	20.6	$1,126	3.6	$3,132	6.5	$437
Age								
Less than 24 years old	20.8	2,342	17.5	1,447	3.6	2,681	2.0	404
24 years or older	24.5	1,558	22.3	976	3.5	3,448	9.5	443
24–29	24.2	2,320	22.1	1,242	5.7	3,936	6.7	590
30–39	27.3	1,329	24.8	866	3.6	3,097	11.8	356
40 years or older	21.0	910	19.3	800	0.9	—	9.9	461

Table 16—Percentage of less-than-full-time, full-year undergraduates with any aid, grants, loans, and employer aid, by institution type and age: 1989–90—Continued

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
Public 2-year								
Total	34.0	2,834	27.4	1,674	14.4	2,424	4.1	702
Age								
Less than 24 years old	35.1	2,992	26.9	1,852	15.6	2,143	0.8	—
24 years or older	32.4	2,641	27.9	1,463	13.1	2,867	8.7	673
24–29	34.1	3,000	28.4	1,605	17.2	2,789	5.6	643
30–39	33.5	2,502	29.5	1,420	11.7	3,123	11.9	702
40 years or older	26.2	1,831	23.7	1,140	5.9	2,484	10.1	654
Private, not-for-profit 4-year								
Total	51.4	4,188	46.0	2,761	21.1	2,996	12.2	1,504
Age								
Less than 24 years old	55.3	5,392	48.1	3,569	28.8	2,844	2.6	1,654
24 years or older	47.3	3,006	43.4	2,011	14.2	3,311	20.9	1,518
24–29	48.6	3,473	44.6	2,268	17.5	3,327	18.4	1,493
30–39	48.4	2,828	43.8	1,878	14.0	3,418	22.6	1,563
40 years or older	43.2	2,492	40.7	1,798	9.2	2,993	22.0	1,473
Private, for profit								
Total	74.2	$3,834	56.2	$1,757	56.0	$2,945	2.1	$1,777
Age								
Less than 24 years old	70.0	3,848	52.6	1,765	55.6	2,736	1.3	—
24 years or older	76.8	3,925	59.1	1,780	55.9	3,181	3.2	2,026
24–29	78.4	4,051	60.0	1,767	60.9	3,175	2.1	—
30–39	78.0	3,925	60.0	1,835	55.3	3,235	3.1	—
40 years or older	70.2	3,585	55.0	1,687	45.0	3,062	5.9	—

[1]Includes grants, loans, work-study, and "other" aid.
[2]Included in grants.
[3]Includes all types of institutions.
—Sample size too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Grants to older students were more common in the more costly institutions (private, not-for-profit 4-year institutions and private, for-profit institutions). Relatively few older students who attended less-than-4-year institutions found it necessary to take out loans (5 percent). Borrowing through student loan programs was most common in private, for-profit institutions (58 percent). Among older undergraduates, employer aid was most often received by students attending private, not-for-profit 4-year institutions, where about one in five students 30 years or older received employer support. The average amount these older students received was about $1,600.

Overall, older students were somewhat less likely than younger students to receive financial aid (39 percent compared with 44 percent). However, because age is not a criterion for distributing financial aid, this difference reflects variations in other characteristics related to aid awards. For example, older students were much more likely than younger students to attend the relatively inexpensive public less-than-4-year institutions (59 percent compared with 33 percent) (table 8). In the case of loans, differences in willingness to borrow may also contribute to the different percentages of older and younger students with loans (21 percent and 15 percent, respectively).

A notable difference exists between younger and older undergraduates in the percentage receiving employer aid. Overall, it was much more often available to older students (9 percent) than younger students (1 percent). This could indicate a greater willingness on the part of employers to support education for full-time workers (older students were more likely than younger ones to be working full time, 46 percent compared with 23 percent) (table 13). Employee benefits, of which tuition aid is often one, are often reserved for full-time employees. Employers might also be more willing to support more experienced workers, those who have longer tenure with their company, or both. Among older students who worked full time, about one-quarter of those whose employers gave them $1,000 or more had incomes of $50,000 or more.[7]

Students who had never applied for financial aid were asked for the most important reason why they had not done so. Forty-one percent of all older students reported that they did not apply for financial aid because they were able to pay for their own education (about the same percentage as younger students) (table 17). Another 26 percent said that their income was too high, but they were not as likely as younger students to give this as the most important reason. Avoiding debt was not a stated concern for a very large proportion of students of any age, but was more of an issue for older students: 10 percent of older students said that a desire to avoid debt was the most important reason for not applying for aid, compared with 5 percent of younger students.

Table 17—Percentage distribution of undergraduates according to most important reason for not applying for financial aid: 1989–90

	Able to pay	Did not want debt	Income too high	Low grades	Hard to apply	Unwilling to disclose finances	Ineligible	No money available	Missed deadline
Total	41.9	6.8	31.8	2.4	5.1	1.7	7.5	0.7	2.0
Age									
Less than 24 years old	42.9	4.9	36.4	3.0	4.8	2.0	3.2	0.4	2.6
24 years or older	40.7	9.5	25.6	1.7	5.3	1.4	13.4	1.1	1.3
24–29	39.3	11.2	25.6	2.3	6.1	2.0	10.2	1.3	2.0
30–39	41.4	9.8	24.2	1.3	5.7	1.0	15.0	0.7	1.0
40 years or older	41.3	7.4	27.3	1.5	4.2	1.2	14.9	1.3	1.0

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

[7]National Center for Education Statistics, NPSAS:90, Data Analysis System.

Subgroups of Older Students

Although older students as a group appear to differ in many ways from younger students, they are not a homogeneous group. Students with different backgrounds and enrollment and work patterns have varied reasons for being enrolled, choosing what and where they study, and ways of financing their education (tables 18–24). To help clarify some of these differences, this section looks at selected populations of older students separately: students employed full time, students enrolled full time, students enrolled less than half time, employer-aided students, students without high school diplomas, women, and single parents. Note, however, that the groups described here are not mutually exclusive.

Employed Full Time

Many older students hold down full-time jobs at the same time that they are enrolled in postsecondary education programs. In 1989–90, almost one-half (46 percent) of all older undergraduates worked 40 or more hours per week (table 23). Most of these full-time workers enrolled part time (about 85 percent) (table 20), and about two-thirds selected public less-than-4-year institutions (table 18).

For older students who work full time, availability of the course of study they want and convenient scheduling of classes are of prime importance. About three-quarters of the older undergraduates who worked said the fact that the institution offered the course of study they wanted and that they could work while attending were very important considerations in choosing an institution (table 21). Most likely because they already had jobs, full-time workers were less likely than those who did not work at all to report that factors related to obtaining a job (the institution's reputation, its reputation for placing graduates, and being able to finish in a shorter time) or obtaining financial aid were very important considerations.

Because they were working while attending mostly low-cost institutions and were usually part-time students, full-time workers as a group were not very dependent on (and may not have been eligible for) financial aid. About one-quarter received some type of aid, but 16 percent received employer aid (table 24). Relatively few took out loans (7 percent compared with 15–28 percent of older students who were not working full time).

Relatively few older students who worked full time received direct financial assistance from their employers. However, they were more likely than part-time workers to get this kind of help (16 percent compared with 8 percent of those who worked 30–39 hours per week and 2 percent of those who worked fewer hours or not at all.

Enrolled Full Time

Older undergraduates who enrolled full time were a minority of all older students, but a sizable group nevertheless (31 percent) (table 20). About one-quarter of older full-time students worked full time as well (table 23).

Older students who enrolled in postsecondary education full time were less concentrated in public less-than-4-year institutions than were other older students. They were much more likely than those who enrolled less than half time to select a 4-year institution or a private, for-profit institution (table 18).

In selecting an institution, older full-time students had different priorities than older part-time students. They were more likely than those who attended less than half time to consider the availability of the desired course of study, the institution's overall reputation and reputation for placing graduates, finishing in a shorter time, tuition, and financial aid as very important factors in their choices (table 21). On the other hand, they were less likely to be concerned with being able to work while attending, living at home, and the proximity of the institution to their residence.

Financial aid availability was a very important consideration in choice of institution to 44 percent of full-time older students (compared with 20 percent of at-least-half-time students and 12 percent of less-than-half-time students (table 21). Two-thirds (67 percent) actually received some type of financial aid: 58 percent had grants and 38 percent took out loans. Only 3 percent received employer aid.

Enrolled Less than Half Time

The majority of older undergraduates who enrolled less than half time (41 percent of all older undergraduates) were full-time workers (60 percent) (tables 20 and 23). The less-than-half-time students were concentrated in public less-than-4-year institutions (77 percent) (table 18). They were much more likely than students who attended with greater intensity to be enrolled in a course of study not leading to a degree or certificate (37 percent compared with 13 percent of full-time students and 20 percent for half-time-or-more students) (table 19). Those who were in a degree program were most likely to be in an associate's degree program. For about three-quarters of the older students who were enrolled less than half time, the availability of the desired course of study, being able to work while attending, and being able to live at home were very important considerations when selecting their institution (table 21).

Twenty-two percent of students enrolled less than half time received some type of financial aid, primarily employer aid. Thirteen percent received an average of $553 from their employer (table 24). Only 2 percent took out loans through a student loan program.

Employer Aided

Businesses are considered important beneficiaries of their employees' education. Recognizing this, some employers pay some or all of their employees' postsecondary education costs. Employer aid may be distributed to individuals entirely at the employer's discretion, made available to some or all types of employees as a formal employee benefit, or made available to unionized employees as part of a collective bargaining agreement. In some cases, employers place restrictions on what recipients can study or what institutions they can attend. For example, employers may require that the course of study be related to the employee's job or lead to a degree, or they may place a cap on the amount of tuition they will pay. In 1989–90, about 9 percent of all older undergraduates received financial assistance from their employer (table 24).

Larger amounts of employer aid were associated with full-time attendance and with enrollment at more expensive institutions, but the nature of the relationship is unclear. Did employers provide more aid because the employees wanted to attend more costly institutions, or did students select more costly institutions because their employers offered generous education benefits? About three-quarters of those with relatively small amounts of employer aid (less than $500) were enrolled less than half time (table 20). Those with $1,000 or more in employer aid were more likely than those with less aid to be enrolled full time.

Almost one-half (47 percent) of older students with relatively large amounts of employer aid ($1,000 or more) were enrolled in bachelor's degree programs (table 19). They were more likely than those with less than $500 or no aid to choose this course of study.

From 78 percent to 85 percent of older students with employer aid (depending on the amount of aid) reported that being able to work while enrolled was a very important consideration in their choice of institution (compared with 61 percent of those without employer aid) (table 21). Employer-aided students were less likely than other students to rate tuition and fees as a very important consideration (17 percent to 23 percent, compared with 38 percent). This is not surprising, because their employers were paying at least part of their tuition and fees.

Employers appeared to help primarily their employees who continued to work full time while attending: 75 percent to 84 percent of older students with employer aid (depending on the amount of aid) were working full time, compared with 43 percent of those without employer aid (table 23). They were also particularly likely to help those who were studying business: 41 percent of those with $1,000 or more in aid, compared with 23 percent of older students without employer aid, identified business as their major field of study (table 22). This reflects the fact that employers may require that employer-supported education be job-related.

Without High School Diplomas

While most older undergraduates received a high school diploma before entering postsecondary education, 9 percent entered with a GED/ certificate, and 3 percent with no high school diploma at all (table 6). While this shows that the lack of a high school diploma does not preclude postsecondary education, the postsecondary experiences of older students without diplomas were quite different from those with high school diplomas.

Older students without diplomas were more likely to select a private, for-profit institution: 16 percent of those with a GED/certificate and 36 percent of those with no high school credential, compared with 7 percent of those with high school diplomas (table 18). Older students without high school diplomas were more likely than those with diplomas to be enrolled full time, reflecting in part their greater concentration in private, for-profit institutions (tables 18 and 20). And, consistent with attending full time, older students without high school diplomas were less likely than those with them to be working while enrolled (table 23).

Roughly half of the older students with a GED/certificate and about 80 percent of those with no high school diploma or certificate were enrolled in postsecondary certificate programs or programs with no award (table 19). Although they were only half as likely as older students with high school diplomas to be enrolled in a bachelor's degree program, some 13 percent of older students with a GED/certificate were enrolled at the baccalaureate level. About two-thirds of the older students with no high school diploma were in business management (22 percent), vocational/technical studies (21 percent), or "other" technical/professional (25 percent) fields (table 22).

The reported importance of various considerations in the choice of institution reflects the concerns of full-time students attending institutions with high costs (table 21). For example, older students with a GED/certificate or no high school credential were more likely than those with a diploma to say that the following were very important considerations: the reputation of the institution for placing graduates, being able to finish in a shorter time, and obtaining the financial aid they needed.

Also consistent with this pattern of enrollment, older students with a GED/certificate or no high school credential were more likely than those with high school diplomas to have received

financial aid (52 percent and 53 percent, compared with 37 percent) (table 24). Older students with a GED/certificate or no high school credential were less likely than those with high school diplomas to receive financial support from their employers to enroll in postsecondary education (5 percent and 3 percent, compared with 9 percent) (table 24).

Single Parents

Among older students, single parents (both male and female) were more than twice as likely as non-single parents to enroll in a private, for-profit institution (18 percent compared with 7 percent) (table 18). Consistent with this enrollment pattern, they were also more likely to be enrolled in certificate programs (22 percent compared with 16 percent), and to be enrolled full time (45 percent compared with 30 percent) (tables 19 and 20).

Older single parents' considerations in selecting an institution were as one would expect for students seeking training for employment: they were more likely than non-single parents to report that the institutions offering the course of study they wanted, the institution's reputation, its reputation for placing graduates, and being able to finish in a shorter time were very important considerations (table 21). They were also more likely than non-single parents to report that tuition and financial aid were very important considerations.

About one-half of all older single parents were enrolled in business and management or "other" technical/professional fields (table 22). They were more likely than non-single parents to be enrolled in health and "other" technical/professional fields.

A majority (61 percent) of older single parents received financial aid (table 24). They were more likely than older non-single parents to have grants (57 percent compared with 31 percent) and loans (26 percent compared with 14 percent), but were less likely to have employer aid (6 percent compared with 10 percent).

Table 18—Percentage distribution of older undergraduates according to type of institution, by selected characteristics: 1989–90

	Public		Private, not-for-profit		
	Less-than-4-year	4-year	Less-than-4-year	4-year	Private, for-profit
Total	58.7	22.0	1.6	9.4	8.3
Gender					
Male	58.2	23.6	1.6	9.0	7.7
Female	59.2	21.3	1.6	9.7	8.2
Race–ethnicity					
American Indian or Native Alaskan	63.2	20.7	0.8	6.7	8.6
Asian/Pacific Islander	63.2	22.2	1.0	7.3	6.3
Black, non-Hispanic	54.8	17.4	2.2	8.2	17.4
Hispanic	53.8	18.4	3.1	10.8	14.0
White, non-Hispanic	59.4	23.1	1.4	9.6	6.4
Single parent					
Yes	56.8	15.9	1.9	7.7	17.6
No	58.8	23.0	1.5	9.7	7.0
Degree program					
Associate's degree	90.4	2.1	1.3	1.5	4.6
Bachelor's degree	3.1	69.5	0.0	26.8	0.6
Undergraduate certificate	55.1	6.3	4.3	5.3	29.0
Other undergraduate	72.6	13.2	1.6	5.9	6.6
Attendance status					
Full-time	33.9	31.8	2.9	11.6	19.9
At least half-time	61.3	23.4	0.8	10.4	4.0
Less than half-time	76.6	14.6	0.7	6.9	1.2
Hours worked/week when enrolled					
None	58.8	19.7	1.9	7.4	12.3
1–19	49.7	33.6	1.5	9.6	5.6
20–29	52.5	30.7	1.6	8.5	6.7
30–39	58.4	24.5	1.5	9.6	6.0
40 or more	66.2	18.5	1.1	9.6	4.6
High school degree or equivalent					
High school diploma	58.2	23.7	1.5	10.1	6.6
GED/certificate	64.4	12.1	2.0	5.5	15.9
None	55.6	1.8	5.4	1.0	36.2
First-time beginner in 1989–90*					
Yes	68.5	7.4	1.7	4.2	18.3
No	72.6	7.1	2.2	4.6	13.4
Employer aid amount					
None	58.5	22.5	1.6	8.6	8.8
$1–$499	78.3	14.5	1.3	5.0	0.9
$500–$999	45.6	27.0	1.1	25.9	0.4
$1,000 or more	3.8	16.8	2.2	49.0	8.1

*Includes first-year/freshman only.

NOTE: Details may not add to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 19—Percentage distribution of older undergraduates according to degree program, by selected characteristics: 1989–90

	Associate's degree	Bachelor's degree	Undergraduate certificate	Other undergraduate
Total	33.1	24.3	16.9	25.7
Gender				
Male	30.7	25.5	17.7	26.1
Female	35.0	23.7	16.3	25.0
Race–ethnicity				
American Indian or Native Alaskan	41.5	20.4	22.4	15.7
Asian/Pacific Islander	24.7	24.0	15.7	35.6
Black, non-Hispanic	35.9	19.2	20.6	24.3
Hispanic	28.1	23.6	22.9	25.4
White, non-Hispanic	33.5	25.1	15.8	25.5
Single parent				
Yes	38.2	18.3	21.9	21.6
No	32.8	25.3	16.1	25.8
Attendance status				
Full-time	26.2	37.1	24.0	12.7
At least half-time	39.7	26.9	13.5	19.9
Less than half-time	36.1	13.7	13.5	36.8
Hours worked/week when enrolled				
None	30.5	21.1	20.4	28.1
1–19	32.7	38.3	12.2	16.9
20–29	31.0	32.1	14.0	22.9
30–39	34.7	25.6	14.8	25.0
40 or more	35.8	20.4	15.2	28.6
High school degree or equivalent				
High school diploma	33.0	26.0	15.3	25.7
GED/certificate	38.3	13.3	25.8	22.6
None	17.4	2.8	42.4	37.4
First-time beginner in 1989–90*				
Yes	38.8	7.2	28.0	25.9
No	38.6	7.7	23.0	30.6
Institution type				
Public				
Less-than-4-year	51.0	1.3	15.9	31.8
4-year	3.2	76.5	4.9	15.4
Private, not for profit				
Less-than-4-year	7.3	0.5	46.0	26.2
4-year	5.3	69.1	9.5	16.2
Private, for profit	18.5	1.6	59.4	20.4
Employer aid amount				
None	33.1	24.3	17.1	25.4
$1–$499	39.5	12.0	15.9	32.6
$500–$999	24.5	36.3	12.6	26.6
$1,000 or more	19.9	46.9	15.0	18.2

*Includes first-year/freshman only.
NOTE: Details may not add to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 20—Percentage distribution of older undergraduates according to attendance status, by selected characteristics: 1989–90

	Full-time	At least half-time	Less than half-time
Total	31.3	27.5	41.2
Gender			
Male	32.3	27.5	40.2
Female	30.5	27.5	41.9
Race–ethnicity			
American Indian or Native Alaskan	40.0	27.5	32.6
Asian/Pacific Islander	30.4	27.5	42.1
Black, non-Hispanic	41.6	28.3	30.1
Hispanic	36.2	29.6	34.3
White, non-Hispanic	29.3	27.1	43.5
Single parent			
Yes	44.5	27.4	28.1
No	29.6	27.5	42.9
Degree program			
Associate's degree	24.1	32.1	43.8
Bachelor's degree	47.1	30.0	22.9
Undergraduate certificate	44.8	22.1	33.2
Other undergraduate	16.1	22.3	61.6
Hours worked/week when enrolled			
None	40.4	26.6	33.0
1–19	52.8	24.2	23.0
20–29	44.5	26.1	29.4
30–39	27.8	31.7	40.4
40 or more	14.6	28.8	56.7
High school degree or equivalent			
High school diploma	29.5	27.8	42.7
GED/certificate	44.1	26.3	29.6
None	47.6	20.9	31.5
First-time beginner in 1989–90*			
Yes	37.3	24.3	38.3
No	26.6	25.2	48.2
Institution type			
Public			
Less-than-4-year	18.0	28.5	53.5
4-year	44.4	28.7	26.9
Private, not for profit			
Less-than-4-year	63.6	16.1	20.3
4-year	38.9	30.6	30.5
Private, for profit	79.7	14.2	6.2
Employer aid amount			
None	33.4	27.5	39.2
$1–$499	5.1	18.9	76.0
$500–$999	8.9	42.8	48.3
$1,000 or more	22.5	39.7	37.8

*Includes first-year/freshman only.

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 21—Percentage of older undergraduates who identified various considerations as "very important" in their choice of institution, by selected characteristics: 1989–90

	Offered course of study wanted	Could work while attending	Could live at home	Instit. had a good rep.	Instit. was close to home	Good rep. for placing grades	Tuition less than others	Could finish in shorter time	Obtained financial aid
Total	78.6	63.0	68.5	49.9	53.6	30.3	36.5	36.9	23.5
Gender									
Male	74.9	64.8	61.6	45.1	46.0	28.7	30.8	33.1	20.1
Female	81.2	61.7	73.2	53.2	58.8	31.4	40.5	39.5	25.8
Race–ethnicity									
American Indian or Native Alaskan	82.2	69.1	74.4	71.4	49.2	38.1	45.6	26.8	25.4
Asian/Pacific Islander	72.5	50.8	59.5	48.1	55.9	35.0	38.1	39.8	23.3
Black, non-Hispanic	86.9	67.7	67.6	59.4	52.1	44.1	43.6	48.4	38.5
Hispanic	78.5	66.2	68.1	54.1	56.4	39.6	48.8	42.0	29.5
White, non-Hispanic	77.8	62.6	69.0	48.2	53.5	27.4	34.4	25.0	21.0
Single parent									
Yes	83.4	60.6	70.7	57.6	57.6	41.0	42.9	47.0	45.9
No	78.1	64.0	68.7	48.6	53.2	28.3	35.5	35.2	20.0
Degree program									
Associate's degree	77.0	66.4	71.7	48.7	56.6	28.6	44.4	38.1	22.3
Bachelor's degree	78.7	59.2	62.4	52.7	51.6	32.4	31.1	30.6	25.5
Undergraduate certificate	82.6	58.1	67.2	53.8	46.8	39.0	33.8	48.8	34.2
Other undergraduate	78.2	65.0	70.7	46.3	55.7	25.1	32.9	33.8	16.6
Attendance									
Full-time	81.2	45.1	60.4	56.8	47.7	42.0	38.3	45.4	44.2
At least half-time	78.0	66.1	69.7	50.4	54.8	29.2	39.6	32.7	20.2
Less than half-time	77.8	73.5	73.6	44.5	57.5	22.2	33.3	32.9	11.7
Hours worked/week when enrolled									
None	80.6	22.1	67.8	55.6	57.6	41.1	37.4	45.6	35.1
1–19	81.7	49.9	64.9	51.0	54.6	34.8	42.0	34.9	32.9
20–29	81.7	64.2	64.6	53.1	49.8	33.2	42.2	36.5	31.3
30–39	77.7	76.2	69.6	49.0	54.8	28.9	42.8	36.7	24.0
40 or more	76.9	78.4	69.8	46.9	52.2	24.9	32.6	33.8	15.5
High school degree or equivalent									
High school diploma	78.4	63.8	68.1	49.3	53.5	29.0	35.9	35.9	21.6
GED/certificate	80.0	57.9	71.0	53.4	55.7	39.3	42.0	42.7	37.2
None	83.4	50.9	72.6	61.5	46.8	50.6	40.0	55.6	47.2
First-time beginner in 1989–90*									
Yes	78.5	63.3	74.3	53.5	55.0	35.7	35.0	41.9	38.4
No	78.6	63.2	69.8	49.5	52.3	30.0	35.2	40.6	22.8

Table 21—Percentage of older undergraduates who identified various considerations as "very important" in their choice of institution, by selected characteristics: 1989–90—Continued

	Offered course of study wanted	Could work while attending	Could live at home	Instit. had a good rep.	Instit. was close to home	Good rep. for placing grades	Tuition less than others	Could finish in shorter time	Obtained financial aid
Institution type									
Public									
Less-than-4-year	76.8	66.4	72.2	46.0	57.5	25.6	42.5	36.0	17.5
4-year	77.7	56.8	60.9	48.1	52.7	29.2	35.3	26.9	23.2
Private, not for profit									
Less-than-4-year	87.2	48.1	62.3	68.2	37.3	51.5	22.3	54.5	41.2
4-year	84.5	67.0	65.2	66.1	43.1	38.9	11.8	39.8	28.5
Private, for profit	87.7	50.5	66.2	64.7	39.1	59.0	22.8	69.7	67.2
Employer aid amount									
None	78.6	60.8	68.1	50.5	53.6	31.6	38.2	37.1	24.1
$1–$499	79.2	84.9	72.4	39.8	59.2	13.5	23.4	33.9	16.9
$500–$999	75.5	81.3	70.4	45.0	52.2	22.4	17.8	29.9	15.1
$1,000 or more	79.7	77.9	71.3	56.4	38.8	28.4	17.2	43.8	22.4

*Includes first-year/freshman only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 22—Percentage distribution of older undergraduates according to field of study, by selected characteristics: 1989–90

	Lib. arts/ Human./ arts	Soc/ behav. sci.	Life sci.	Phys. sci.	Math	Comp. info. tech.	Engin- eering	Edu- cation	Bus./ mgt.	Health	Voc/ tech	Other tech./ prof.
Total	14.0	4.2	1.5	1.2	0.9	5.8	6.4	7.7	24.1	10.6	8.0	15.7
Gender												
Male	12.7	4.4	2.0	1.8	1.4	6.5	12.9	4.4	21.6	4.3	16.4	11.7
Female	15.1	4.0	1.2	0.8	0.6	5.1	1.7	10.0	25.8	15.3	2.0	18.4
Race–ethnicity												
American Indian or Native Alaskan	22.9	1.0	1.9	3.7	0.0	4.5	10.5	7.2	20.2	13.0	4.8	10.2
Asian/Pacific Islander	15.8	2.6	1.8	0.5	3.0	13.0	12.2	4.0	22.7	7.5	6.8	10.1
Black, non-Hispanic	9.3	3.2	2.2	0.9	0.7	5.2	5.2	5.0	27.7	11.2	8.3	21.1
Hispanic	14.7	3.5	1.3	0.3	1.3	6.2	6.3	7.3	24.3	5.6	11.8	17.5
White, non-Hispanic	14.4	4.5	1.4	1.4	0.8	5.4	6.3	8.3	23.6	11.1	7.7	15.0
Single parent												
Yes	11.4	3.0	1.2	0.6	0.2	4.4	3.6	5.6	27.2	14.5	5.9	22.3
No	14.3	4.3	1.5	1.4	0.8	6.2	6.8	8.3	23.6	10.1	8.3	14.4
Degree program												
Associate's degree	15.1	1.7	0.9	1.4	0.8	6.1	6.7	4.7	26.7	12.4	7.0	16.6
Bachelor's degree	13.1	10.3	3.0	1.1	1.1	4.5	7.0	10.7	26.1	13.2	1.4	8.6
Undergraduate certificate	9.7	1.3	0.6	1.1	0.2	7.6	6.1	5.4	20.7	8.2	17.3	21.9
Other undergraduate	17.7	3.0	1.5	1.2	1.6	5.0	5.4	11.3	20.0	5.8	9.8	17.7

Table 22—Percentage distribution of older undergraduates according to field of study, by selected characteristics: 1989–90—Continued

	Lib. arts/ Human./ arts	Soc/ behav. sci.	Life sci.	Phys. sci.	Math	Comp. info. tech.	Engin- eering	Edu- cation	Bus./ mgt.	Health	Voc/ tech	Other tech./ prof.
Attendance status												
Full-time	10.8	4.7	1.8	1.0	0.7	5.0	7.1	8.2	21.9	11.8	8.0	18.9
At least half-time	13.8	5.0	1.1	1.2	0.9	5.1	6.7	6.7	25.2	12.5	7.9	13.9
Less than half-time	17.8	3.0	1.5	1.2	1.0	6.2	5.6	8.5	25.5	8.7	7.5	13.7
Hours worked/week when enrolled												
None	14.3	3.9	1.2	0.8	1.1	5.9	5.0	9.5	22.3	10.3	7.2	18.6
1–19	15.8	5.8	2.2	0.8	1.1	4.0	7.2	12.3	15.2	16.8	3.3	15.5
20–29	17.6	6.8	1.9	1.7	1.6	2.3	5.0	8.0	21.1	12.8	5.8	15.5
30–39	15.1	5.7	2.3	1.0	0.5	4.1	5.0	7.9	24.8	13.3	5.4	15.1
40 or more	12.8	3.3	1.2	1.5	0.6	7.2	7.9	5.6	27.7	8.4	10.3	13.5
High school degree or equivalent												
High school diploma	14.3	4.4	1.6	1.2	0.9	5.8	6.6	8.0	24.2	10.5	7.4	15.1
GED/certificate	12.4	2.8	1.2	1.5	0.7	4.9	4.7	5.1	23.6	13.9	10.7	18.5
None	7.4	0.4	0.5	0.9	1.0	7.3	5.1	7.2	22.1	1.8	21.0	25.3
First-time beginner in 1989–90*												
Yes	10.7	0.7	0.0	1.5	0.6	5.4	3.7	6.4	30.0	7.1	12.5	21.3
No	14.4	1.9	0.8	1.3	0.9	7.0	5.5	6.1	23.4	8.4	11.5	19.0
Institution type												
Public												
Less-than-4-year	16.6	2.1	1.1	1.4	0.9	6.0	5.6	6.4	23.5	10.5	10.7	15.4
4-year	13.5	10.7	3.2	1.3	1.4	3.4	8.2	13.5	20.5	13.4	1.5	9.4
Private, not for profit												
Less-than-4-year	8.6	0.4	0.0	3.4	0.0	3.9	3.7	1.6	22.4	9.6	13.8	32.6
4-year	14.2	6.0	1.8	0.7	0.7	5.7	6.0	7.1	34.4	14.5	0.8	8.1
Private, for profit	2.2	0.0	0.0	0.4	0.0	10.1	7.8	3.1	26.1	1.4	14.0	35.0
Employer aid amount												
None	14.5	4.3	1.6	1.2	1.0	5.7	6.3	8.0	23.0	10.6	7.7	16.3
$1–$499	10.4	3.0	0.6	1.9	0.4	6.8	5.3	5.0	34.6	5.3	14.3	12.5
$500–$999	6.4	2.1	0.0	2.8	0.5	3.6	11.8	4.9	33.4	17.7	8.8	8.3
$1,000 or more	5.7	2.8	0.3	0.3	0.0	8.4	12.1	1.3	41.3	14.9	8.1	5.0

*Includes first-year/freshman only.

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 23—Percentage distribution of older undergraduates according to hours worked per week while enrolled, by selected characteristics: 1989–90

	None	1–19	20–29	30–39	40 or more
Total	25.2	7.8	8.9	11.8	46.3
Gender					
Male	17.5	5.7	7.7	9.9	59.3
Female	29.0	9.4	9.8	13.4	38.4
Race–ethnicity					
American Indian or Native Alaskan	22.0	11.3	6.4	9.4	50.9
Asian/Pacific Islander	31.9	8.2	9.6	10.2	40.1
Black, non-Hispanic	27.8	6.2	9.3	13.7	43.1
Hispanic	26.4	4.6	9.9	12.0	47.2
White, non-Hispanic	24.4	8.2	8.8	11.6	47.0
Single parent					
Yes	29.5	7.7	7.3	13.2	42.3
No	20.9	8.0	9.3	12.1	49.7
Degree program					
Associate's degree	22.8	7.5	8.2	12.1	49.3
Bachelor's degree	22.5	12.6	12.1	12.8	40.0
Undergraduate certificate	31.9	5.9	7.7	10.8	43.7
Other undergraduate	26.6	4.9	7.7	11.1	49.8
Attendance status					
Full-time	35.6	14.7	14.2	11.7	23.9
At least half-time	23.7	6.8	8.4	13.4	47.7
Less than half-time	18.8	4.1	6.0	10.9	60.1
High school degree or equivalent					
High school diploma	23.8	7.6	9.0	12.0	47.6
GED/certificate	32.6	10.6	8.3	10.9	37.6
None	51.6	4.9	8.5	7.3	27.8
First-time beginner in 1989–90*					
Yes	28.6	6.8	8.6	11.3	44.8
No	27.7	5.8	7.1	11.6	47.9
Institution type					
Public					
Less-than-4-year	24.3	6.3	7.7	11.3	50.4
4-year	22.8	12.0	12.6	13.3	39.4
Private, not for profit					
Less-than-4-year	32.9	8.4	9.8	12.4	36.6
4-year	20.9	8.3	8.4	12.6	49.7
Private, for profit	44.5	6.3	8.6	10.3	30.4
Employer aid amount					
None	27.1	8.4	9.6	12.0	42.9
$1–$499	5.9	1.0	2.1	9.7	81.2
$500–$999	4.2	2.2	1.3	8.8	83.5
$1,000 or more	9.4	2.8	2.0	10.4	75.4

*Includes first-year/freshman only.

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Table 24—Percentage of older undergraduates with any aid, grants, loans, and employer aid, by selected characteristics: 1989–90

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
Total	38.7	$2,970	34.0	$1,714	14.9	$3,183	8.6	$765
Gender								
Male	38.1	3,001	33.5	1,708	13.9	3,341	10.4	791
Female	38.8	2,941	34.2	1,714	15.3	3,079	7.6	740
Race–ethnicity								
American Indian or Native Alaskan	48.9	3,621	43.8	2,257	14.7	3,642	4.3	—
Asian/Pacific Islander	23.8	3,643	21.1	2,330	7.9	3,399	3.0	—
Black, non-Hispanic	49.9	3,154	43.7	1,905	21.6	2,905	4.6	753
Hispanic	45.9	3,141	39.7	1,886	18.3	3,241	5.1	636
White, non-Hispanic	37.0	2,879	32.6	1,626	13.9	3,226	9.9	761
Single parent								
Yes	60.8	3,321	57.0	2,032	25.7	2,859	5.9	685
No	35.4	2,988	30.7	1,657	14.1	3,262	9.6	796
Degree program								
Associate's degree	35.2	2,422	32.2	1,478	10.0	3,016	8.5	531
Bachelor's degree	47.0	3,868	41.4	2,266	23.5	3,156	8.4	1,231
Undergraduate certificate	49.7	3,104	41.2	1,617	23.5	3,203	7.7	755
Other undergraduate	28.0	2,280	24.6	1,338	7.2	3,520	9.6	650
Attendance status								
Full-time	66.7	4,103	57.5	2,336	37.7	3,139	2.6	1,644
At least half-time	34.0	2,230	29.7	1,370	10.2	2,991	8.7	930
Less than half-time	22.0	1,190	20.5	759	1.9	3,998	13.2	553
Hours worked/ week when enrolled								
None	37.9	3,486	32.6	2,090	16.4	3,175	2.3	1,326
1–19	47.7	4,430	41.6	2,364	28.3	3,248	2.0	—
20–29	39.5	4,013	34.2	2,160	21.5	3,221	2.0	681
30–39	35.1	2,990	29.9	1,580	14.5	3,434	7.6	712
40 or more	28.4	1,934	25.7	1,144	6.5	3,272	16.1	742
High school degree or equivalent								
High school diploma	36.9	2,889	32.3	1,679	13.8	3,149	9.2	773
GED/certificate	51.7	3,426	46.7	1,921	21.7	3,387	4.7	671
None	53.4	3,362	45.9	1,825	26.3	3,216	2.9	—
First-time beginner in 1989–90[3]								
Yes	47.0	2,878	40.7	1,679	18.0	3,023	8.6	523
No	36.8	2,551	31.6	1,432	12.8	3,212	8.1	588

Table 24—Percentage of older undergraduates with any aid, grants, loans, and employer aid, by selected characteristics: 1989–90—Continued

	Any aid[1]		Grants		Loans		Employer aid[2]	
	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount	Average Percent	Amount
Institution type								
Public								
Less-than-4-year	28.5	1,860	26.0	1,212	5.3	3,050	8.9	461
4-year	41.3	3,414	36.0	1,916	20.6	2,949	6.7	722
Private, not for profit								
Less-than-4-year	56.0	3,612	44.0	2,196	19.7	3,498	7.9	1,191
4-year	55.5	4,172	51.2	2,634	22.8	3,564	16.6	1,587
Private, for profit	80.9	4,120	63.9	1,956	57.5	3,300	2.4	2,381

[1]Includes grants, loans, work-study, and "other" aid.
[2]Included in grants.
[3]Includes all types of institutions.
—Sample size too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Older First-Time Beginning Postsecondary Students

Many older undergraduates with first-year status in 1989–90 had actually been enrolled in postsecondary education before then. In fact, only 11 percent of all older students with first-year/freshmen status in 1989–90 were enrolled in postsecondary education for the first time.[8] Compared with other older students with first-year/freshmen status, older first-time beginners were slightly more likely to enroll in private, for-profit institutions (18 percent compared with 13 percent) and to enroll full time (37 percent compared with 27 percent) (tables 18 and 20). They were also more likely to consider financial aid very important in selecting an institution (38 percent compared with 23 percent), and more of them received financial aid (47 percent compared with 37 percent), reflecting their greater tendency to be enrolled full time and to attend private, for-profit institutions (tables 21, 24, and 18). Older first-time beginners were especially likely to be studying business (30 percent compared with 23 percent of other older first-year/freshmen) (table 22).

Persistence of Older Beginning Postsecondary Students

The persistence of beginning postsecondary students two and a half years after they started is best examined in the context of the degrees and certificates they were seeking. Obviously, most of those starting a bachelor's degree would not have had time to finish, while those enrolled in short-term certificate programs would have had ample time to complete them. For the students who were not seeking any kind of formal award, there is no way to tell whether or not they persisted to achieve their goals. Persistence patterns for students with certificate and degree objectives were different for older and younger beginning postsecondary students.

Of the older beginning postsecondary students seeking a certificate in 1989–90, 36 percent completed within 9 months, and another 19 percent completed in more than 9 months. A few (4 percent) were still enrolled in the spring of 1992, and the rest (41 percent) had left out without earning the certificate (table 25). The most striking difference between older and younger beginners was the higher percentage of older students completing a certificate within 9 months: 36 percent for older students compared with 25 percent for younger students.

Table 25—Percentage distribution of 1989–90 first-time beginners seeking a certificate according to status in 1992, by age

	Completed		Did not complete	
	Within 9 months	In over 9 months	Still enrolled	Not enrolled
Total	29.2	21.3	5.1	44.3
Age				
Less than 24 years old	25.4	21.7	5.9	46.9
24 years or older	36.1	18.6	4.0	41.3

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study First Followup (BPS:90/92), Data Analysis System.

[8] National Center for Education Statistics, NPSAS:90, Data Analysis System.

Older first-time beginners starting an associate's degree in 1989–90 were less likely than younger first-time beginners to earn the degree by spring of 1992 (4 percent compared with 15 percent) (table 26). This is to be expected, as older students were more likely to be enrolled part time (table 11). However, older students were less likely to have been continuously enrolled through this period (10 percent compared with 22 percent). And, they were much more likely to have left without reenrolling (66 percent versus 40 percent) (figure 7). This was true whether they started as full- or part-time students.

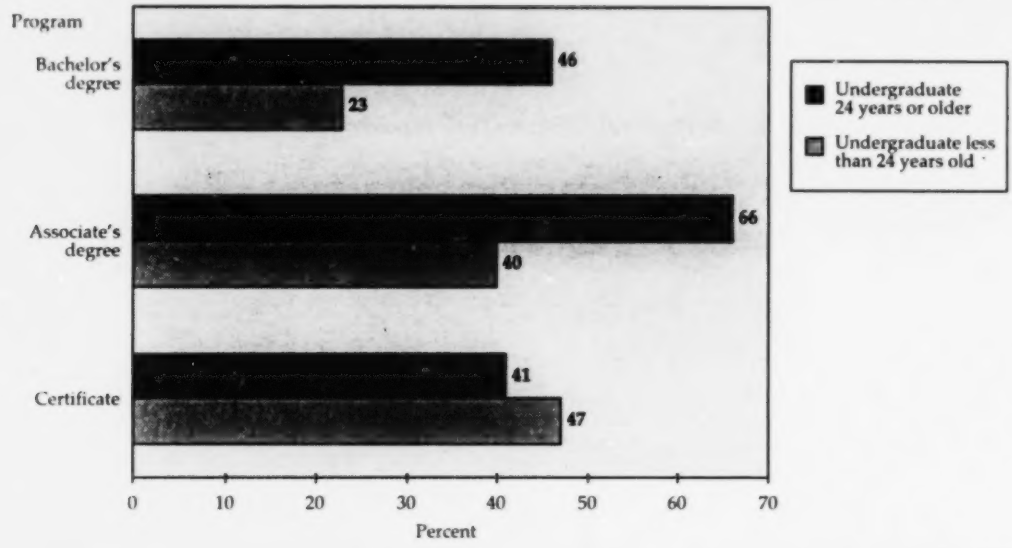
Table 26—Percentage distribution of 1989–90 first-time beginners seeking an associate's degree according to status in 1992, by age

	Completed	Continuously enrolled	Left but reenrolled	Left but didn't reenroll
		All students		
Total	12.3	19.1	22.5	46.1
Age				
Less than 24 years old	14.6	21.8	23.3	40.4
24 years or older	4.4	10.1	20.0	65.5
		Full-time in 1989–90		
Total	17.7	21.2	20.1	41.0
Age				
Less than 24 years old	19.0	23.7	20.1	37.2
24 years or older	8.7	4.8	20.4	66.1
		Part-time in 1989–90		
Total	5.0	14.2	26.5	54.3
Age				
Less than 24 years old	6.6	16.5	31.3	45.6
24 years or older	2.3	10.5	18.9	68.3

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study First Followup (BPS:90/92), Data Analysis System.

Figure 7—Percentage of 1989–90 first-time beginning postsecondary students who had left without completing by 1992 and had not reenrolled, by degree program and age: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

While spring 1992 was too early to compare completion rates for students seeking bachelor's degrees, older students beginning in 1989–90 tended to be farther away from this goal than were younger students. They were only half as likely to be continuously enrolled (29 percent compared with 58 percent) and were about twice as likely to leave without reenrolling (46 percent compared with 23 percent) (table 27).

Table 27—Percentage distribution of 1989–90 first-time beginners seeking a bachelor's degree according to status in 1992, by age

	Completed	Continuously enrolled	Left but reenrolled	Left but didn't reenroll
Total	0.7	56.1	18.9	24.2
Age				
Less than 24 years old	0.7	57.5	18.7	23.1
24 years or older	2.0	28.7	23.5	45.7

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study First Followup (BPS:90/92), Data Analysis System.

Combining Working and Studying

Beginning postsecondary students who worked were asked whether they perceived themselves primarily as students who worked (to pay living expenses or to have extra spending money) or as workers who went to school to gain skills to advance in their jobs, expand their career options, or expand their knowledge and skills more generally. There were distinct differences between older and younger beginners in how they perceived themselves in this respect.

About three-quarters of the older first-time beginners who worked perceived themselves primarily as workers (table 28). Thirty-four percent were enrolled to gain skills to advance in their jobs, 27 percent to expand their career options, and 15 percent to expand their own knowledge and skills. Even among those who enrolled full time, 54 percent perceived themselves primarily as workers.

Table 28—Percentage distribution of 1989–90 first-time beginners according to perception of status as student and worker

	Student			Worker			
	Total	Works to pay expenses	Works to earn spending money	Total	Gaining skills for job advance	Expanding new career options	Expanding knowledge/ skill
			All students				
Total	75.8	50.6	25.2	24.2	9.3	10.0	4.9
Age							
Less than 24 years old	83.3	54.7	28.6	16.7	5.7	7.6	3.5
24 years or older	24.2	21.6	2.6	75.8	33.6	27.2	15.0
			Enrolled full-time in 1989–90				
Total	86.1	55.4	30.7	13.9	5.0	5.7	3.2
Age							
Less than 24 years old	88.5	56.3	32.3	11.5	3.7	4.8	3.0
24 years or older	45.6	40.3	5.3	54.4	25.8	21.6	6.9
			Enrolled part-time in 1989–90				
Total	50.8	39.2	11.6	49.2	19.4	20.7	9.1
Age							
Less than 24 years old	67.5	51.4	16.1	32.5	11.0	16.8	4.7
24 years or older	13.0	11.5	1.5	87.0	37.9	29.9	19.3

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study First Followup (BPS:90/92), Data Analysis System.

Among younger first-time beginners who worked, on the other hand, 83 percent perceived themselves primarily as students. Fifty-five percent were working to pay their living expenses, and 29 percent to earn extra spending money. Even among those who enrolled part time, 68 percent saw themselves primarily as students.

Participation in Campus Activities and Programs

Persistence in postsecondary education has been linked to participation in campus life.[9] Students who enrolled in postsecondary education for the first time in 1989–90 were asked about their participation in various campus activities and programs. Of all the activities asked about, older first-time beginners were most likely to have worked in study groups with other students (41 percent) or to have gone places with friends from school (35 percent) (table 29). Twenty-two percent had attended career-related lectures. Relatively few had joined school clubs (9 percent), participated in intramural activities (11 percent), or sought assistance from student assistance centers or programs (13 percent). Younger first-time beginning postsecondary students were more likely to participate in all of these activities. This might be because the activities are designed with younger students' interests and schedules in mind, that work and family demands placed on older students do not leave them time to participate, or both.

Table 29—Percentage of first-time freshmen who "sometimes" or "often" participated in various campus activities and programs, by age: 1989–90

	Went places with friends from school	Study groups with other students	Intramural activities	Career-related lectures	School clubs	Student assistance centers or programs
Total	75.6	57.5	39.3	34.6	26.8	18.7
Age						
Less than 24 years old	83.8	60.8	45.0	37.1	30.3	19.9
24 years or older	34.7	41.0	10.7	21.6	8.9	12.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Older first-time beginners also tended to have less contact with faculty than younger first-time beginners. They were less likely to have talked about academic matters with faculty (51 percent compared with 68 percent), met with an advisor concerning academic plans (44 percent compared with 61 percent), or had contact with faculty outside of class (31 percent compared with 46 percent) (table 30).

Table 30—Percentage of first-time freshmen who "sometimes" or "often" had various types of contact with faculty, by age: 1989–90

	Talked about academic matters	Met advisor concerning academic plans	Contact with faculty outside of class
Total	65.5	58.3	43.1
Age			
Less than 24 years old	68.4	61.3	45.5
24 years or older	51.2	43.6	31.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

[9]The best known work has been done by Vincent Tinto. See "Dropouts from Higher Education: A Theoretical Synthesis of Recent Research," *Review of Educational Research* 45 (1975); "Limits of Theory and Practice in

Controlling for Factors Related to Persistence

The previous section of this report described the persistence of beginning postsecondary students with various degree goals, portraying older and younger students separately. Older beginning postsecondary students seeking associate's and bachelor's degrees were found to be more likely to leave before completing a degree or reenrolling by spring of 1992 than were younger beginning postsecondary students with the same stated degree goals. However, this study's approach of controlling for group differences by crosstabulation has limitations with survey data, because sample size limits the number of cells into which the data can be usefully subdivided and there are complex interrelationships among variables that cannot be disentangled in tabular analyses.

To overcome these limitations, linear models are frequently used to examine several sets of variables simultaneously. This section proposes one such model (linear regression) to estimate these effects (adjusted means).[10] The regression model takes into account the effect of all variables simultaneously and, hence, controls for overlapping effects that can influence tabular findings. By estimating the joint effect of all variables taken together, regression models can be used to test individual parameters while "holding constant" the influence of other variables.

Of particular interest here is whether the pattern of greater likelihood of leaving without completing or reenrolling found among older beginning postsecondary students is related to factors unique to older students or to other characteristics (such as attendance intensity, for example) that are more common among the older undergraduate population. Regression analysis allows us to control for these other characteristics and to determine the effects of variables other than age on the likelihood of leaving without completing or reenrolling.

In order to investigate the contribution of various factors that appeared in the tabular analysis to be associated with persistence, separate regressions were estimated using the proportions of beginning postsecondary students seeking associate's and bachelor's degrees who left without attaining a degree or reenrolling by spring of 1992 as the dependent variables. The models were reduced by removing variables without explanatory power.[11] The regression coefficients were then used to adjust the means (in this case, proportions). The results of these analyses follow.

Beginning Postsecondary Students Seeking an Associate's Degree

Table 31 shows the adjusted proportions of 1989–90 beginning postsecondary students who stated that they were seeking an associate's degree who left postsecondary education without earning their degree or reenrolling by spring of 1992, taking into account other student and institutional characteristics. The unadjusted means are included for comparison.

Overall, older beginning postsecondary students seeking an associate's degree were much more likely than their younger counterparts to leave without completing or reenrolling (table 26), and table 31 shows that this pattern persists even when other factors are taken into account. Among the factors for which we were able to control, the only characteristic other than age that appears to affect the likelihood of leaving without completing or reenrolling out is single parenthood status. Single parents were more likely than non-single parents to leave.

Student Attrition," *Journal of Higher Education* 53(6) (1982): 687–700; and "Stages of Student Departure: Character of Student Leaving," *Journal of Higher Education* 59(4) (1988): 438–55.

[10]See appendix B for a description of the means adjustment method. An alternative to a linear regression model would be a logistic regression model.

[11]See the notes at the bottom of tables 31 and 32 to see which variables were removed from the initial models.

That single parents were more likely to leave without completing or reenrolling within the two-and-one-half-year period of the follow-up is not surprising, because the time constraints and limited financial resources of single parents are well known. Why other older associate degree-seekers would be more likely to leave, independent of other student or institutional characteristics, is less obvious. One possibility may be simply that they enroll on a more irregular basis than their younger counterparts, taking time off and reenrolling as family and work demands rise and fall. In other words, some of these students may still reenroll and complete an associate's degree at a later date. If this is so, the 1994 follow-up of the BPS students might be expected to show more older students who began in 1989–90 returning and completing the degrees they were seeking.

Table 31—Percentage of undergraduates seeking an associate's degree in 1989–90 who left without re-enrolling by spring 1992 and the adjusted percentage taking into account the covariation of the variables listed in the table[1]

	Unadjusted proportions[2]	Adjusted proportions[3]	WLS coefficient	Standard error
Total	46.1	46.1	0.40	
Age				
24 years or older	65.5	62.8	0.22	0.06**
Under 24 years old	40.4	41.1	(†)	(†)
Single parent AY89–90				
Single parent	76.3	64.1	0.19	0.10*
Not single parent	44.4	45.0	(†)	(†)

[1]Last group in each category is the reference group for comparison.
[2]Estimates from BPS: 90/92 NCES Data Analysis System.
[3]Proportions adjusted for differences in the proportion borrowing associated with differences in other variables in the table (see appendix B for details).
[4]Weighted least squares coefficient.
[5]Standard error of regression coefficient adjusted for design effect (see appendix B for details).
* $p \leq .05$
** $p \leq .01$
†Not applicable for reference group.

NOTE: The following variables were redundant (no significant difference) and were removed from the model: gender, marital status, employer aid, race–ethnicity, hours worked per week when enrolled, attendance status (persistence), high school degree or equivalent, total loan aid, attendance status (intensity), parent education level, family income percentile rank, and institution type.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Another possibility may be that older beginning postsecondary students may state "associate's degree" as their goal, but they may actually have more limited objectives—wanting to learn specific skills to advance in their job, for example—and leave after achieving those objectives. Yet another possibility may be that students who delay their undergraduate education until they are older and who aim for an associate's degree are among the least prepared academically or psychologically and less committed than others to achieving a degree and, therefore, are more likely to leave without completing or reenrolling. If either or both of these last two possibilities are partial explanations, the 1994 follow-up study will not show any sizable number of these students returning to complete an associate's degree within the elapsed time period. In reality, all three possibilities, and others, may contribute to the overall enrollment patterns of older students. Future follow-ups of the 1989–90 BPS students will help clarify these patterns.

Beginning Postsecondary Students Seeking a Bachelor's Degree

Older beginning postsecondary students seeking a bachelor's degree were also much more likely than their younger counterparts to leave without completing or reenrolling within the two-and-one-half-year study period (table 27). However, in contrast to the findings for those seeking an associate's degree, when controlling for other student and institutional characteristics, the effect of age disappears for those seeking a bachelor's degree (table 32). In other words, the reason that older beginning postsecondary students seeking a bachelor's degree leave at a greater rate than their younger counterparts does not appear to be directly related to age, in and of itself, but rather to other characteristics that are found in greater proportions among older students.

Beginning bachelor's degree-seekers of all ages were more likely to leave if they were married or formerly married, or if they started towards their bachelor's degree goal in a private, not-for-profit less-than-4-year institution or private, for-profit institution rather than a public 4-year institution. They were less likely to leave if they were female; Asian rather than white, non-Hispanic; attended full time, full year rather than less than full time, full year; had a parent with a bachelor's degree as opposed to a high school diploma or less; and were in the highest income quartile rather than the two middle quartiles.

Table 32—Percentage of undergraduates seeking a bachelor's degree in 1989–90 who left without re-enrolling by spring 1992 and the adjusted percentage taking into account the covariation of the variables listed in the table[1]

	Unadjusted proportions[2]	Adjusted proportions[3]	WLS coefficient	Standard error
Total	24.2	24.2		
Gender				
Female	21.4	20.9	-0.07	0.01**
Male	27.2	27.7	(†)	(†)
Race–ethnicity				
Black, non-Hispanic	26.3	26.3	0.02	0.03
Hispanic	26.3	23.0	-0.02	0.04
Asian/Pacific Islander	11.8	12.1	-0.13	0.04**
American Indian or Native Alaskan	—	48.3	0.24	0.08**
White, non-Hispanic	24.5	24.7	(†)	(†)
Marital status				
Married	45.6	40.7	0.18	0.04**
Divorced, separated or widowed	63.1	60.1	0.37	0.06**
Never married	22.8	23.1	(†)	(†)
Attendance persistence AY89–90				
Full-time, all or part year	21.9	22.7	-0.06	0.02*
Part-time, all or part year	30.9	28.4	(†)	(†)
Parent education level				
Some postsecondary, less than bachelor's	26.5	26.7	-0.00	0.02
Bachelor's degree or higher	19.0	21.2	-0.06	0.02**
High school diploma or less	29.1	26.8	(†)	(†)
Family income percentile rank in 1988				
Lowest quartile	26.0	25.1	-0.00	0.02
Highest quartile	19.4	20.9	-0.05	0.02**
Middle two quartiles	26.3	25.8	(†)	(†)
Institution type				
Private, not for profit				
Less-than-4-year	41.0	39.0	0.14	0.05**
4-year	19.0	20.8	-0.04	0.02
Private, for profit	60.6	55.2	0.31	0.15*
Public				
Less-than-4-year	28.6	25.2	0.01	0.03
4-year	23.8	24.6	(†)	(†)

[1]Last group in each category is the reference group for comparison.
[2]Estimates from BPS: 90/92 NCES Data Analysis System.
[3]Proportions adjusted for differences in the proportion borrowing associated with differences in other variables in the table (see appendix B for details).
[4]Weighted least squares coefficient.
[5]Standard error of regression coefficient adjusted for design effect (see appendix B for details).
—Too few cases for a reliable estimate.
* $p \leq .05$
** $p \leq .01$
†Not applicable for reference group.

NOTE: The following variables were redundant (no significant difference) and were removed from the model: employer aid, single parent status, high school degree, and total loan aid.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Data Analysis System.

Conclusion

Students 24 years or older now make up a substantial proportion of the undergraduate population, especially in less-than-4-year institutions. In less-than-2-year institutions and in public 2-year institutions, more than one-half of the undergraduates were 24 years or older in 1989–90. While older students are no longer "nontraditional" in terms of their numbers, as a group they differ from their younger counterparts in important ways that institutions need to take into account as they design their programs and services.

Older and younger students differ in their demographic and socioeconomic characteristics, their enrollment patterns, their reasons for choosing a particular institution in which to enroll, how they combine studying and working, and their use of financial aid. In 1989–90, older students were more likely than younger students to be married and have children or other dependents. About one-quarter of all undergraduate women in their 30s were single parents. Older undergraduates, especially those in their 30s or older, were better off financially than students under 24 years old who were financially independent of their parents.

Compared with younger students, older undergraduates were much more likely to attend part time, and less likely to enroll in a formal degree or certificate program. Almost one-half of all older undergraduates worked full time while enrolled. Being able to live at home while enrolled became increasingly important with age. Both older and younger students were more likely to be studying business than anything else. However, older students were more likely than younger students to select occupationally-related fields such as computer and information technology, health, and vocational/technical subjects. Older students were somewhat less likely than younger students to receive financial aid, but employer aid was much more available to older students, especially to those who worked full time.

While older undergraduates as a group differ from younger students in many ways, older students themselves do not form a homogeneous group. They are motivated by a variety of goals, including finding a job, training for a new career, enhancing skills needed for their current job or a promotion, and personal enrichment. They also have different family and work commitments. Consequently, how older students combine work and enrollment, how they choose what and where they study, and how they finance their education reflect these differences.

Among students who enrolled in postsecondary education for the first time in 1989–90, older students seeking a certificate were more likely than their younger counterparts to complete their program within 9 months. On the other hand, older first-time beginners seeking associate's and bachelor's degrees were more likely than younger first-time beginners with those goals to leave before completing and without reenrolling by spring of 1992. At the associate's degree level, this pattern persists even when other factors are taken into account. At the bachelor's degree level, in contrast, the effect of age disappears after controlling for other factors. In other words, leaving is not related to age per se, but to other characteristics found in greater proportions among older students.

Appendix A

Glossary

This glossary describes the variables used in this analysis in the order that they appear in the report. The variables were taken directly from the NCES NPSAS:90 undergraduates and BPS:90/92 Data Analysis Systems, NCES software applications that generate tables from the NPSAS:90 and BPS:90/92 data. A description of the DAS software can be found in appendix B. The labels in parentheses correspond to the names of the variables in the DAS.

NPSAS:90 VARIABLES

Student Characteristics

Age as of 12/31/89 (AGE)

This is a continuous variable that was aggregated to the following categories:

Less than 24 years old	Student was less than 24 years old as of 12/31/89.
24–29 years old	Student was between 24 and 29 years old as of 12/31/89.
30–39 years old	Student was between 30 and 39 years old as of 12/31/89.
40 years old or older	Student was 40 years old or older as of 12/31/89.

Gender of student (GENDER)

Male

Female

Race–ethnicity (RACE)

Asian/Pacific Islander	A person having origins in any of the Pacific Islander original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.
Black, non-Hispanic	A person having origins in any of the black racial groups of Africa, not of Hispanic origin.
Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
American Indian	A person who has origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.

White, non-Hispanic	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).

Marital status (MARITAL)

Not married	Student was not married (including divorced).
Married/separated	Student was married or separated.

Dependents other than spouse (NUMDEPND)

None	Student had no dependents other than a spouse.
One	Student had one dependent other than a spouse.
Two or more	Student had two or more dependents other than a spouse.

Single parent status (SINGLPAR)

Single parent	Student had minor dependents and was not married.
Not a single parent	All other students. Students who were financially dependent were coded automatically as "not a single parent."

High school degree (HSDEG)

Form in which high school degree or equivalent was received.

High school diploma	High school diploma.
GED/certificate	GED or equivalent or certificate of high school completion.
None	No high school equivalency.

Parent education (PAREDUC)

The highest level of education completed by the students' parents (mother's or father's education, whichever was highest).

High school or less	High school diploma, GED, or less than a high school diploma.
Postsecondary, but less than a bachelor's	Trade school, 2 years of college or more (but not a bachelor's degree).
Bachelor's or higher	Bachelor's degree, master's degree, doctoral degree, or professional degree.

Dependency status (DEPEND)

Dependent	Students were financially dependent if they did not meet any of the criteria for independence (see below).
Independent	A student was considered independent by meeting one of the following criteria: • 24 years of age by December 31 of the academic year; • a military veteran; • a ward of the court or both parents are deceased; • has legal dependents other than a spouse; • is married or a graduate student and not claimed as a tax exemption for the calendar year coinciding with the beginning of the academic year; and • is a single undergraduate but not claimed as a tax exemption for the 2 years prior to the beginning of the academic year and has at least $4,000 in financial resources.

Income and dependency level (INCOME)

The source of income for independent students is their own assets or earnings, including those of their spouse if they are married. Incomes in NPSAS:90 were derived from three sources (in order of priority): institutional records, parental reports, and student reports .

Less than $10,000	Income of less than $10,000 in 1989.
$10,000–$29,999	Income between $10,000 and $29,999 in 1989.
$30,000 or more	Income of $30,000 or more in 1989.

Income percentile (FAMINCPR)

Income percentile ranks (used only for multivariate analysis) are calculated separately for dependent and independent students. For dependent students, the percentile rank is based on family income (DEPINC); for independents, it is based on the independent student's income (INDEPINC).

Lower 25th percentile	Income falls at or below the lowest quartile of undergraduates' income distribution.
26th to 75th percentile	Income falls between the 25th and 75th percentile of undergraduates' income distribution.
Upper 25th percentile	Income falls at or above the 75th percentile of undergraduates' income distribution.

Undergraduate degree program (PROGTYP)

Type of program undergraduate was enrolled in during the 1989–90 academic year.

Associate's degree	Student enrolled in an associate's degree program.
Bachelor's degree	Student enrolled in a bachelor's degree program.
Undergraduate certificate	Student enrolled in a program for a certificate or formal award other than an associate's or bachelor's degree.
Other undergraduate	Student is not enrolled in any of the above programs.

Considerations in selecting the institution (COURSOFF; SCHNWRK; LIVEHOME; GD_REP; SCHCLOSE; TUITLESS; PLACEMT; SHORTER; FINAID)

Students were asked to indicate whether certain reasons were "very important," "somewhat important," or "not important" to them in deciding on the school they attended in fall 1989. Tables 10 and 21 report the percentages that reported the following reasons were "very important":

The school offered the course of study the student wanted.
The student could work while attending the school.
The student would live at home.
The school had a good reputation.
The institution was close to home.
The tuition and other direct school expenses were less at the school than at other schools.
The school had a good reputation for placing its graduates
The student could finish the course in a short period of time.
The student obtained the financial aid needed at the school.

Attendance status: Intensity (ATTEND)

This variable represents the enrollment status reported by the institution for each student in the first term enrolled (sampled term).

Full-time	Student was enrolled full time according to the institution's definition of full-time enrollment during the sampled term.
At least half-time	Student was enrolled at least half time or more according to the institution's definition of part-time enrollment during the sampled term.
Less than half-time	Student was enrolled less than half time according to the institution's definition of part-time enrollment during the sampled term.

Attendance status: Persistence status (ATTNST3)

This variable represents students' enrollment (reported by the student) over the entire academic year (9 months).

Full-time, full-year	This category includes students who were enrolled full time for 9 months. Note that this category may exclude some students enrolled full time in a private, for-profit institution if the program is shorter than 9 months.
Part-time and/or part-year	This category includes students who were not enrolled full time for part-year at least nine months. Thus, it includes students enrolled full time for one term and part time for an entire year, and students enrolled full or part time for one term and not enrolled for a second.

Major field of study (MAJORS3)

Humanities	English, liberal arts, philosophy, theology, art, music, visual and performing arts.
Social/behavioral science	Psychology, economics, political science, other social science.
Life sciences	Biology.
Physical sciences	Physical science, physical sciences technology.
Mathematics	Mathematics.
Computer /information technology	Computer science, computer technology.
Engineering	Engineering, engineering technology.
Education	Elementary/secondary education, other education.
Business/management	Accounting, finance, secretarial, business, marketing.
Health	Nursing RN, practical nursing, pre-medicine, other medical.
Vocational/technical	Mechanic technology, protective service, skilled crafts, transportation, construction.
Other technical/ professional	Agriculture, architecture, journalism, communications, cosmetology, health technology, home economics, pre-law, paralegal, court reporting, social work.

Average number of hours worked per week while enrolled in 1989–90 (EMWKHR3)

Student reported number of hours worked per week during months of enrollment.

Did not work	Student reported not working while enrolled.

1–19 hours	Student reported working an average of 1 to 19 hours per week.
20–29 hours	Student reported working an average 20 to 29 hours per week.
30–39 hours	Students reported working an average of 30 to 39 hours per week.
40 or more hours	Student reported working an average of 40 or more hours per week.

Financial Aid Variables

Received any aid (Total Aid Amount-TOTAID)

Student received financial assistance during the period July 1989 to June 1990 in the form of grants, loans, or work from sources other than family or self to help finance student's education. Students receiving aid were identified by the TOTAID variable having a positive value.

Grants (TOTGRT)

Total grants received between July 1989 and June 1990. Grants are a type of student financial aid that does not require repayment or employment. At the undergraduate level, grants are usually (but not always) awarded on the basis of need, possibly combined with some skills or characteristics the student possesses. Grants include scholarships and fellowships. The percentage of students with grants is the percentage with positive amounts recorded for this variable. The average amount received is the average for all students who received grants.

Loans (TOTLOAN)

Total loans received between July 1989 and June 1990. This includes all loans through federal, state, or institutional programs except PLUS loans (which are made to parents). Loans are a type of student financial aid that advances funds and that are evidenced by a promissory note requiring the recipient to repay the specified amounts under prescribed conditions. The percentage of students with loans is the percentage with positive amounts recorded for this variable. The average amount received is the average for all students who received loans.

Employer aid (EMPLYAMT)

Total employer aid received between July 1989 and June 1990. Employer aid is aid that students receive from the business, corporation, institution, or individual by whom the student is employed. Employers include the postsecondary institution the student attends if the student is employed in a capacity other than in an assistantship or through a formal work-study program.

Most important reason for not applying for financial aid (IMPORTNT)

Students who had never applied for financial aid (EVERAPLY) were asked to state the most important reason why they had never applied for financial aid. Table 17 shows the percentage of students who responded "yes" to the following:

My family and I were able to pay for my education.
I was not willing to go into debt for schooling.
Family income was too high to qualify for financial aid.
My grades and/or test scores were not high enough to qualify for financial aid.
It was too hard to apply for financial aid.
Neither I nor my parents wanted to disclose our financial situation.
I was not eligible because I only attended part time.
No money was available for aid.
I missed the deadline for application.

Institutional Characteristics

Control of institution (CONTROL)

Public	A postsecondary education institution, which is supported primarily by public funds and operated by publicly elected or appointed officials who control the programs and activities.
Private, not-for-profit	A postsecondary institution that is controlled by an independent governing board and incorporated under section 501(c)(3) of the Internal Revenue Code.
Private, for-profit	A postsecondary institution that is privately owned and operated as a profit-making enterprise. Includes career colleges and proprietary institutions.

Level of institution (TYPE)

Less-than-2-year	Institution where all of the programs are less than 2 years in duration. The institution must offer a minimum of one program of at least 3 months in duration that results in a terminal certificate or license, or is creditable toward a formal 2-year or higher award.
2- to 3-year	Institution that confers at least a 2-year formal award (certificate or associate's degree) or offers a 2- or 3-year program that partially fulfills requirements for a baccalaureate or higher degree at a 4-year institution. The institution does not award a baccalaureate degree. These would include most community or junior colleges.
4-year nondoctoral-granting	Institution or subsidiary element that confers at least a baccalaureate degree in one or more programs, but does not award higher than a master's degree.
4-year doctoral-granting	Institution that confers a doctoral or first professional degree in one or more programs.

Type of institution (OFCON1) (combination of institution "level" and "control" as defined above)

Public less-than-2-year	Public less-than-2-year institution.
Public 2- to 3-year	Public 2- to 3-year institution.
Public 4-year non-doctoral-granting	Public 4-year institution not offering doctoral or first-professional degrees.
Public 4-year doctoral-granting	Public 4-year institution offering doctoral or first-professional degrees.
Private, not-for-profit less-than-2-year	Private, independent less-than-2-year institution.
Private, not-for-profit 2- to 3-year	Private, independent 2- to 3-year institution.
Private, not-for-profit 4-year nondoctoral-granting	Private, independent 4-year institution not offering doctoral or first-professional degrees.
Private, not-for-profit 4-year doctoral-granting	Private, independent 4-year institution offering doctoral or first-professional degrees.
Private, for-profit less-than-2-year	Private, for-profit less-than-2-year institution.
Private, for-profit 2-year or more	Private, for-profit 2-year or more institution.

BPS:90/92 VARIABLES

The National Postsecondary Student Aid Study of 1990 (NPSAS:90) provided the base year data for the Beginning Postsecondary Students Longitudinal Survey, which reinterviewed these students in spring 1992.

Degree goal (DEGGOAL)

Degree intention was determined from the response to the question, "Toward which degree or other award are the courses you are taking leading?" It was therefore possible for students to be working toward a degree that the institution did not offer (for example, a student could be attending a community college and working toward a bachelor's degree).

None	Student was not working toward a degree or other award.
Vocational certificate or license	Student reported a vocational certificate or license as current goal.
Associate's degree	Student reported an associate's degree as current goal.

Bachelor's degree	Student reported a bachelor's degree as current goal.
Other	Student was not pursuing any of the above goals.

Bachelor's degree persistence (BARESULT)

Refers to students whose degree goal was a bachelor's degree. Because students would not normally complete a baccalaureate within the survey period, this variable emphasizes continuity of enrollment. Students are classified as follows:

Completed	Student reported attaining a bachelor's degree.
Continuously enrolled	Student had no interruption in enrollment of more than 4 consecutive months
Re-enrolled following interrupted enrollment	Student had an interruption in enrollment of more than 4 consecutive months and reenrolled.
Left without reenrollment and without degree	Student left without attaining a degree and did not reenroll during the survey period (by spring 1992).

Enrollment is defined as continuous if enrollment is never interrupted for more than four consecutive months. Reenrollment for associate's and bachelor's degree refers to students who reenrolled at least once by the time of the spring 1992 follow-up survey. It is important to note that reenrollment doesn't imply current (spring 1992) enrollment. Students who reenrolled may have experienced subsequent interruptions in enrollment.

Associate's Degree Persistence (AARESULT)

Refers to students whose goal was an associate's degree. The measure emphasizes both degree completion and continuity of enrollment. Students are classified as follows:

Completed	Student reported attaining an associate's degree.
Continuously enrolled	Student still enrolled and did not interrupt enrollment for more than 4 consecutive months.
Reenrolled following interrupted enrollment	Student interrupted enrollment for a period of more than 4 consecutive months.
Left without reenrollment and without degree	Student left without attaining an award and did not reenroll during the survey period.

Vocational certificate or license (ANYCERT)

Refers to students whose degree goal was a vocational certificate or license. Because these programs are typically of short duration and, therefore, could have been completed by the time of the follow-up survey, these measures emphasize credential completion. Students are classified as follows:

Completed, less than 9 months	Student completed certificate or license in less than 9 months.
Completed, 9 months or more	Student completed certificate or license in 9 months or more.
Still enrolled	Student was enrolled at the time of the survey.
Left without credential	Student left without attaining an award and did not reenroll during the survey period (by spring 1992).

Primary role in postsecondary education (J12ROLE)

Self-identified role of student who was both working and enrolled at the same time.

Student who works to pay expenses	Respondent self-identified as student working to pay expenses.
Student who works to earn spending money	Respondent self-identified as student working to earn spending money.
Employee gaining skills for job advancement	Respondent self-identified as employee studying to gain skills for job advancement.
Employee expanding career options	Respondent self-identified as employee studying to expand career options.
Employee expanding own knowledge or skills	Respondent self-identified as employee studying to expand own knowledge or skills.

Appendix B

Technical Notes and Methodology

The 1989–90 NPSAS and the 1990–92 Beginning Postsecondary Student Surveys

The need for a nationally representative database on postsecondary student financial aid prompted the U.S. Department of Education to conduct the National Postsecondary Student Aid Study, a survey conducted every three years beginning in 1987. The NPSAS sample was designed to include students enrolled in all types of postsecondary education. Thus, it included students enrolled in public institutions; private, not-for-profit institutions; and private, for-profit institutions. The sample included students at 4-year and 2-year institutions, as well as students enrolled in occupationally specific programs that lasted less than 2 years.

The 1990–92 Beginning Postsecondary Students Longitudinal Study (BPS:90/92) followed students identified as first-time beginning (FTB) students in the academic year 1989–90 from the NPSAS:90 sample. A followup was conducted 2 years after the NPSAS:90 survey that obtained information concerning enrollment, program completion, education financing, employment, and family formation; expectations for graduate school; participation in additional education (provided by an employer or other non-postsecondary provider); family income and expenditure; goals and aspirations; and civic participation. The data derived from this survey permit a variety of analyses concerning postsecondary persistence and completion, entry into the work force, and civic participation.

NPSAS:90 included a stratified sample of approximately 69,000 eligible students (about 47,000 of whom were undergraduates) from about 1,100 institutions. Students were included in the sample if they attended a NPSAS-eligible institution; were enrolled between July 1, 1989 and June 30, 1990; and were enrolled in one or more courses or programs including courses for credit, a degree or formal award program of at least 3 months' duration, or an occupationally or vocationally specific program of at least 3 months' duration. Regardless of their postsecondary status, however, students who were also enrolled in high school were excluded.

For each of the students included in the NPSAS sample, there were up to three sources of data. First, institution registration and financial aid records were extracted. Second, a Computer Assisted Telephone Interview (CATI) designed for each student was conducted. Finally, a CATI designed for the parents or guardians of a subsample of students was conducted. Data from these three sources were synthesized into a single system with an overall response rate of about 89 percent. For example, the variable age was determined by first checking student responses. If a student did not provide this information, age was taken from the institutional record abstract.

For more information on the NPSAS survey, consult *Methodology Report for the 1990 National Postsecondary Student Aid Study* (Longitudinal Studies Branch, Postsecondary Education Statistics Division, Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, NCES 92-080, June 1992).

NPSAS: 90 yielded an initial set of 11,700 BPS students, which contained 10,566 students who had been selected as undergraduate students, and 1,134 students who were later identified as graduate or first-professional students as discussed above. The BPS:90/92 sample consisted of 10,624 members for whom response and eligibility status were defined. Sample-based adjustment cell weighting was used to compensate for BPS nonresponse and ineligibility. The weighted percent responding at this phase of data collection (i.e., the estimated percent of the population represented by the sample of students for whom eligibility could be determined using the BPS

procedures) was 85.8 percent. Both the weighted and unweighted percentages of respondents among the sample students known to be eligible for BPS were 99.7 percent. Therefore, the weighted and unweighted BPS response rates (products of the above response rates for eligibility determination and BPS interviewing) were 85.5 percent and 85.2 percent, respectively.

For more information on the BPS:90/92 survey, consult the *Beginning Postsecondary Students Longitudinal Study First Followup (BPS:90/92) Final Technical Report*, Postsecondary Longitudinal Studies Branch, Postsecondary Education Statistics Division, National Center for Education Statistics, U.S. Department of Education, 555 New Jersey Avenue NW, Washington, DC 20208-5652.

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and non sampling errors. Sampling errors happen because observations are made only on samples of students, not on entire populations. Non-sampling errors occur not only in sample surveys but also in complete censuses of entire populations.

Non-sampling errors can be attributed to a number of sources: inability to obtain complete information about all students in all institutions in the sample (some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and estimating missing data.

Data Analysis System

The estimates presented in this report were produced using the NPSAS:90 undergraduate and BPS:90/92 Data Analysis Systems (DAS). The DAS software makes it possible for users to specify and generate their own tables from the NPSAS and BPS data. With the DAS, users can recreate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[1] and weighted sample sizes for these estimates. For example, tables B1a, B1b, B2a, B2b, and B2c present the standard errors that correspond to selected tables in the text. If the number of valid cases is too small to produce an estimate, the DAS prints the message "low-N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Also output with the correlation matrix are the design effects (DEFT) for all the variables identified in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the NPSAS stratified sampling method. (See discussion under "Statistical Procedures" below for adjustment procedure.)

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[1] The NPSAS sample is not a simple random sample and, therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

Table B1—Standard errors for selected estimates of percentages from NPSAS:90

	Total	Less than 24 years	24 years or older	24–29 years	30–39 years	40 years or older
Gender (table 3)						
Male	.52	.53	.82	1.00	1.08	1.48
Female	.52	.53	.82	1.00	1.08	1.48
Race–ethnicity (table 3)						
American Indian	.08	.09	.12	.15	.24	.25
Asian/Pacific Islander	.32	.36	.39	.60	.41	.60
Black, non-Hispanic	.68	.60	.94	.90	1.09	1.36
Hispanic	.56	.61	.57	.71	.78	.57
White, non-Hispanic	.99	1.01	1.19	1.27	1.39	1.55
Single parent (females only) (table 5)						
Yes	.53	.26	.84	1.12	1.30	1.22
No	.53	.26	.84	1.12	1.30	1.22
High school degree or equivalent (table 6)						
High school diploma	.37	.29	.47	.63	.72	.79
GED/certificate	.24	.19	.40	.54	.65	.69
None	.23	.17	.25	.32	.37	.49
Institution type (table 8)						
Public less-than-4-year	1.62	1.55	1.79	1.96	1.86	2.01
Public 4-year	1.61	1.82	1.43	1.79	1.35	1.36
Private, not-for-profit less-than 4-yr.	.18	.18	.20	.28	.24	.22
Private, not-for-profit 4-year	.68	.93	.68	.69	.78	.89
Private, for-profit	.66	.54	.67	.80	.73	.62
Degree program (table 9)						
Associate's degree	1.28	1.31	1.57	1.63	1.83	2.05
Bachelor's degree	1.53	1.71	1.37	1.75	1.29	1.35
Undergraduate certificate	1.07	.99	1.35	1.23	1.48	2.06
Other undergraduate	1.09	.96	1.61	1.42	1.78	2.54
Attendance status (table 11)						
Full-time	1.16	1.01	1.15	1.35	1.31	1.34
At least half-time	.54	.64	.73	1.02	1.00	1.21
Less than half-time	.91	.59	1.26	1.37	1.49	1.65
Hours worked/week when enrolled (table 13)						
None	.48	.48	1.00	1.17	1.79	2.53
1–19	.40	.42	.75	.94	1.34	1.46
20–29	.42	.49	.69	.97	.98	1.84
30–39	.35	.40	.60	.93	.98	1.18
40 or more	.40	.42	.99	1.16	1.59	2.46
Financial aid receipt (table 14)						
Any aid	.81	.83	.96	1.13	1.25	1.39
Grants	.73	.76	.88	1.03	1.16	1.29
Loans	.65	.64	.71	.95	.79	.61
Employer	.25	.12	.50	.49	.75	.85

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Undergraduate Data Analysis System.

Table B2—Standard errors for selected estimates of percentages from BPS:90/92

	Total	Less than 24 years old	24 years or older
Persistence in certificate programs (table 25)			
Completed within 9 months	2.35	2.80	3.85
Completed in over 9 months	1.90	2.45	2.40
Not completed, still enrolled	1.30	1.86	1.60
Not completed, not enrolled	2.62	3.35	3.97
Persistence in associate's degree programs (table 26)			
Completed associate's degree	1.26	1.64	1.44
Continuously enrolled	1.94	2.34	2.73
Re-enrolled	2.07	2.39	3.56
Left, did not re-enroll	2.07	2.35	4.13
Persistence in bachelor's degree programs (table 27)			
Completed bachelor's degree	.13	.13	.95
Continously enrolled	1.38	1.39	6.44
Re-enrolled for bachelor's degree	1.10	1.12	5.87
Left, did not re-enroll	1.17	1.16	6.55

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study (BPS:90/92), Data Analysis System.

For more information about the 1990 NCES Data Analysis Systems, contact:

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Statistical Procedures

The descriptive comparisons were tested in this report using Student's *t* statistics. Comparisons based on the estimates of the proportions include the estimates of the probability of a Type I error, or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

The 1989–90 NPSAS survey, while representative and statistically accurate, was not a simple random sample. Instead, the survey sample was selected using a more complex three-step procedure with stratified samples and differential probabilities of selection at each level. First, postsecondary institutions were initially selected within geographical strata. Once institutions were organized by zip code and state, they were further stratified by control (i.e., public; private, not-for-profit; or private, for-profit) and offering (less-than-2-year, 2- to 3-year, 4-year non doctoral-granting, and 4-year doctoral-granting). Sampling rates for students enrolled at different institutions and levels (undergraduate or other) varied, resulting in better data for policy purposes, but at a cost to statistical efficiency.

Student's *t* values may be computed for comparisons using these tables' estimates with the following formula:

$$t = P_1 - P_2 \; / \; \text{SQRT} (se_1^2 + se_2^2)$$

where P_1 and P_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. Note that this formula is valid only for independent estimates. When the estimates were not independent (for example, when comparing the percentages across a percent distribution in this report, across a row in a table, a covariance term was added to the denominator of the *t*-test formula).

There are hazards in reporting statistical tests for each comparison. First, the test may make comparisons based on large *t* statistics appear to merit special attention. This can be misleading since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of students in the specific categories used for comparison. Hence, a small difference compared across a large number of students would produce a large *t* statistic.

A second hazard in reporting statistical tests for each comparison is making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of *k* tests within a family. This guarantees both that the individual comparison would have $p \leq .05$ and that when *k* comparisons were made within a family of possible tests, the significance level of the comparisons would sum to $p \leq .05$.[2]

For example, in a comparison of the percentages of males and females who enrolled in postsecondary education only one comparison is possible (males v. females). In this family, $k=1$, and the comparison can be evaluated with a Student's *t* test. When students are divided into five racial–ethnic groups and all possible comparisons are made, then $k = 10$ and the significance level of each test must be $p \leq .05/10$, or .005. The formula for calculating family size (k) is as follows: $k = j * (j - 1)/2$, where *j* is the number of categories for the variable being tested. In the case of race–ethnicity, there are five racial–ethnic groups (American Indian, Asian/Pacific Islander, black, Hispanic, and white), so $k = 5*(5-1)/2=10$.

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[2]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the *t* statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56: 52–64.

Adjustments of means

Tabular results are limited by sample size when attempting to control for additional factors that may account for the variation observed between two variables. For example, when examining the percentages for those who persist in postsecondary education by age, it is impossible to know to what extent the observed variation is due to age and to what extent it is due to differences in other factors such as attendance status, single-parent status, race–ethnicity, parents' education, and so on. However, if a table were produced showing age within attendance status, within single parent status, for example, the cell sizes would be too small to identify the patterns. For those cases where the sample size becomes too small to support controlling for another level of variation, one must use other methods to take such variation into account.

Adjusted values for subgroup populations were obtained by regressing the dependent variable on a set of descriptive variables such as attendance status, race–ethnicity, etc. Substituting ones or zeros for the subgroup variable(s) of interest and the mean proportions for the other variables results in an estimate of the adjusted proportion for some specified subgroup holding all other variables constant. For example, consider the case in which two variables, age and single-parent status, are used to describe leaving without completing or re-enrolling in an associate's degree program (for students seeking an associate's degree). The variables age and single-parent status are recoded into a dummy variable representing age and a dummy variable representing single-parent status:

Age:

	A
24 years or older	1
Under 24 years old	0

and

Single-parent status:

	S
Single parent	1
Not a single parent	0

The following equation is then estimated from the correlation matrix output from the DAS:

$$\hat{Y} = a + \beta_1 A + \beta_2 S$$

To estimate the adjusted mean for any subgroup evaluation at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, given a case where Y=leaving without completing or re-enrolling in an associate's degree program (for students seeking an associate's degree) was being described by A and S (coded as shown above), and the means for A and S are:

Variable	X
A	.655
S	.057

Estimating the above equation from the correlation matrix and the regression results in:

$$\hat{Y} = 0.40+(0.22)A+(0.19)S$$

To estimate the adjusted value for older students, one substitutes the appropriate values for the intercept and each dummy variable.

Variable	Value	B
a	1.000	.40
A	1.000	0.22
S	.057	0.19

This results in:

$$\hat{Y} = .40 + (.22)(1) + (.19)(.057)$$

$$\hat{Y} = 0.630$$

In this case, the adjusted mean for older students is 0.627 and represents the expected dropout rate for older students pursuing an associate's degree who look like the average student across the other variables (in this example, single-parent status).

It is relatively straightforward to produce a multivariate model using NPSAS:90 or BPS:90/92 data, since one of the output options of the DAS is a correlation matrix, computed using pair-wise missing values.[3] This matrix can be used by most commercial regression packages as the input data to produce weighted least-square estimates of the parameters. That was the general approach used for this report, with two additional adjustments described below to reduce the effect of redundant parameters and to incorporate the design effect for statistical testing.

Since many of the independent variables are interrelated (as previously discussed in the report), the presence of some variables in the model is redundant. That is, the variance explained by them will have been accounted for by other variables in the model. Accordingly, variables without explanatory power were removed from the model, resulting in a reduced regression model that was used to produce the parameter estimates shown in the above formula.

Most commercial regression packages compute parameter standard errors on the assumption of simple random sampling. For the NPSAS:90 and BPS:90/92 data, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the DEFT of the dependent variable,[4] where DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and is available with the correlation matrix.

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[3] Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to use different error assumptions than pairwise or to estimate probit/logit models can apply for a restricted data license from NCES.

[4] The adjustment procedure and its limitations are described in the *Analysis of Complex Surveys*, eds. C.J. Skinner, D. Holt, and T.M.F. Smith (New York: John Wiley & Sons, 1989).

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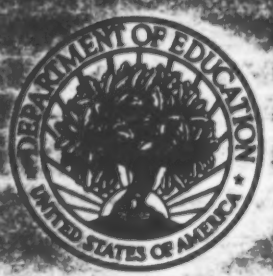

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